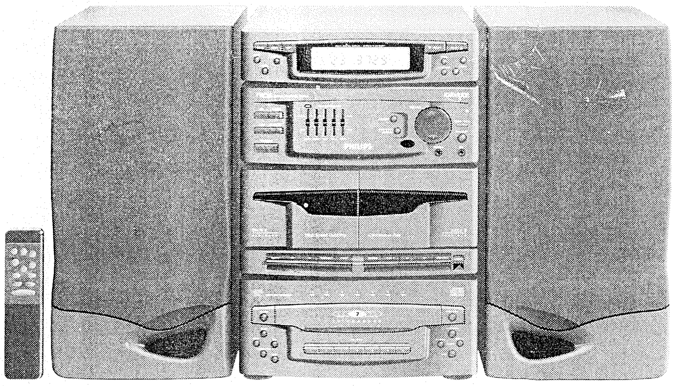
Mini System FW36/20/21/22/25/30/37

Service
Service
Service



Service Manual

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PCS 64 062

PHILIPS

SPECIFICATIONS

GENERAL

Mains voltage/setting	230V for -/20/22 240V for -/25/30 Switchable 120V - 230V (Set at 230V) for -/21
Mains frequency	50Hz
Mains breakdown protection	10 minutes
Clock Accuracy	< 4 sec/day
Power consumption	126W max.
Dimension centre unit	240 x 352.5 x 273mm

TUNER : FM SECTION

Tuning range	87.5MHz - 108MHz
IF frequency	10.7MHz
Aerial input	75Ω coaxial
Sensitivity at 26dB S/N	< 8µV {6.9µV}
Selectivity at 600kHz bandwidth	> 20dB {30dB}
IF rejection	> 50dB {60dB}
Image rejection	> 20dB {25dB}

TUNER : AM SECTION

Tuning range	MW	522kHz - 1611kHz
	LW	153kHz - 279kHz
IF frequency		450kHz
Sensitivity at 26dB S/N	MW	< 3.6mV/M {3.2mV/M}
	LW	< 6.0mV/M {6.0mV/M}
Selectivity at 18kHz bandwidth	MW	> 16dB {20dB}
	LW	> 20dB {24dB}
IF rejection	MW	> 24dB {24dB}
	LW	> 26dB {26dB}
Image rejection	MW	> 28dB {28dB}
	LW	> 30dB {30dB}

AMPLIFIER

Output power at 10% distortion		2 x 12W -1dB
Speaker impedance		2 x 6Ω L/R
Frequency response within -3dB		63Hz - 15kHz
DBB & Equalizer control		-6dB to +6dB
Headphone output at 32Ω		25mW
Input sensitivity	Aux/TV	400mV at 47kΩ
	Mic	1.5mV at 600Ω for -/21and -/30

CASSETTE RECORDER

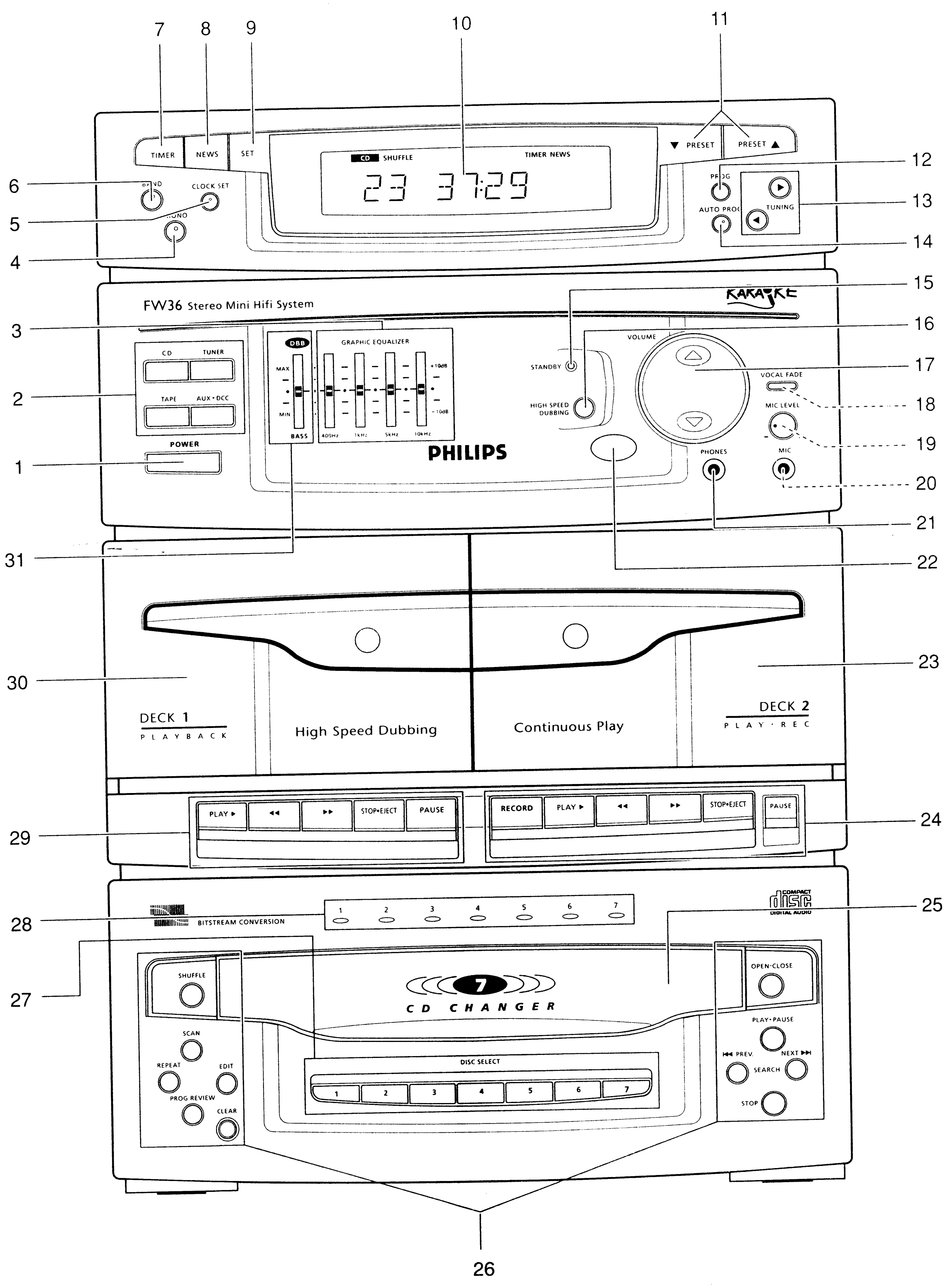
Number of track	2 x 2 stereo
Tape speed	4.76 cm/sec ± 2% 1.8 x 4.76 cm/sec
Wow and flutter	< 0.4%
Fast-wind time C60	130 sec
Bias system	65kHz ± 5kHz
Recording playback frequency response within -8dB	250Hz - 6300Hz
Signal to noise ratio	> 41dB

COMPACT DISC

Frequency response within +2dB/-4dB	20Hz - 20kHz
Signal/Hiss ratio	> 75dB
Distortion at 1kHz	< 0.03%
Channel difference at 1kHz	< 2dB
Channel crosstalk at 1kHz	> 60dB
De-emphasis	0 or 15/50 µS (Switched by subcode on the disc)

{..} Values for /22 only

CONNECTIONS AND CONTROLS



1
2
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11
12
13
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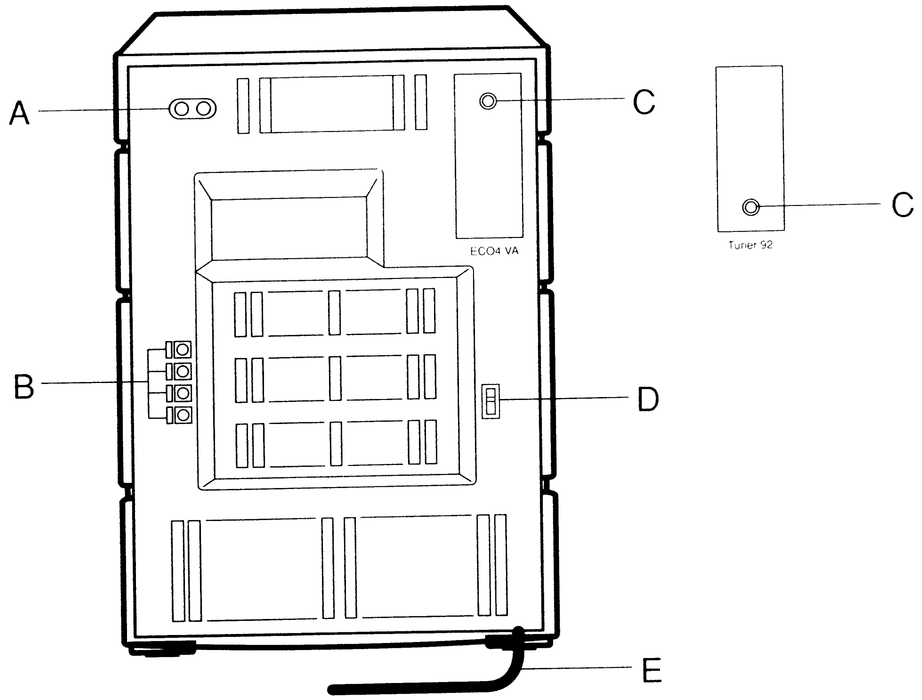
19
20
21
22
23
24
25
26
27
28
29
30
31
TIMER
NEWS
SET
CD SHUFFLE
TIMER NEWS
23 37:29
▼ PRESET
PRESET ▲
BAND
CLOCK SET
MONO
PROG
AUTO PROG
TUNING
FW36 Stereo Mini Hifi System
KARAOKE
CD
TUNER
TAPE
AUX • DCC
POWER
DBB
MAX
MIN
BASS
GRAPHIC EQUALIZER
+10dB
-10dB
400Hz
1kHz
5kHz
10kHz
PHILIPS
STANDBY
HIGH SPEED DUBBING
VOLUME
VOCAL FADE
MIC LEVEL
PHONES
MIC
DECK 1
PLAYBACK
High Speed Dubbing
Continuous Play
DECK 2
PLAY • REC
PLAY ▶
◀◀
▶▶
STOP•EJECT
PAUSE
RECORD
BITSTREAM CONVERSION
COMPACT DISC DIGITAL AUDIO
7 CD CHANGER
SHUFFLE
SCAN
REPEAT
EDIT
PROG REVIEW
CLEAR
DISC SELECT
OPEN•CLOSE
PLAY•PAUSE
PREV.
NEXT
SEARCH
STOP



A
B
C
C
D
E
ECO4 VA
Tuner 92

CONNECTIONS AND CONTROLS

1	Power		1414
2	Function controls	CD	1421
		Tuner	1426
		Tape	1420
		Aux/DCC	1410
3	Graphic equalizer		3508 - 3511
4	Mono		1419
5	Clock set		1418
6	Band		1425
7	Timer		1424
8	News		1423
9	Set		1422
10	LCD display		1401
11	Presets up/down		1428, 1429
12	Program		1413
13	Tuning up/down		1412, 1416
14	Auto program		1417
15	Standby LED		6420
16	High dpeed dubbing		1415
17	Volume up/down		1411, 1427
18	Vocal fade*		1553
19	Mic level*		3673
20	Mic input*		1551
21	Headphone socket		1550
22	IR sensor		6406
23	Cassette compartment 2		
24	Rec/Pb Deck controls	Record	
		Play	
		Rewind	
		Fast forward	
		Stop/Eject	
		Pause	
25	CDC Tray		
26	CDC controls	Shuffle	1450
		Scan	1451
		Repeat	1459
		Program/Review	1458
		Edit	1454
		Clear	1455
		Stop	1456
		Play/Pause	1460
		Open/Close	1462
		Next	1461
		Previous	1457
27	Disc select		
28	Disc indicator		
29	Play Deck controls	Play	
		Rewind	
		Fast forward	
		Stop/Eject	
		Pause	
30	Cassette compartment 1		
31	DBB control		3507
A	Aux/TV input		1552
B	Loudspeaker sockets		1304
C	FM antenna socket		1101 or 1110
D	Voltage selector		1281
E	Mains cord		

* For karaoke versions only

SERVICE TEST PROGRAM 1

Operating sequence	Display shows	Remarks	In case of problems check
Hold "Program" and "Preset Up" button down while Power on to enter Service test program.	XX YY-S # This is the main menu.	where: XX - Type no. numeric YY - Master µP version S - Service mode	
Press "Program"	PASS or P Main menu reappears after 2 seconds.	Eeprom test	Check IC if Display shows ERR or N
Press "Autoprogram"	NEW or N Main menu reappears after 2 seconds.	Eeprom is now reset to default data.	
Press "Clock Set"	32K or 32	The Alarm buzzer is turned on. An output signal of 4096Hz is available at pin 37 of the main µProcessor.	Check X'tal
Press "Clock Set"	8M or 8	The output signal at pin 37 is now 3906.25Hz.	Check 8MHz oscillator
Press "Clock Set"	Main menu reappear.		
Press "Set Timer/News"	FAST or F NOM or N Main menu reappears after 2 seconds.	Pressing "Set Timer/News" key will alternate between Fast and Normal speed. In the Fast mode the clock increases at 1 minute per second. Leaving the test program now will allow quick customer checks on the clock/timer/alarm function.	Ensure the clock is in normal speed before returning to customer.
Press "Mono" and followed by any key on the set or Remote control. Press "Mono" to return to Main menu	See key test Table 1 and 2.		
Press "News"	See Table 3 and Main menu.	Pressing the "News" key will scroll through the 4 different displays and the Main menu.	
Press "Timer"	AUX TAPE CD TUNER Main menu reappears after 2 seconds.	During source switching the set is not muted.	
Disrupt the mains supply to exit the Service test program.			Ending the Service test by pressing the "Power" key from the Main menu will render : * CD error codes to be displayed. * Tuner "Program" and "Autoprogram" keys are deactivated.

Note: XX - Model model (eg 36 for FW36, etc.)
YY - Software verstion, counting down from 99

TABLE 1. SERVICE KEY TEST TABLE

Timer/News/Tuner keys	Display	Function keys	Display	CD Keys	Display
Timer	14	CD	09	Shuffle	61
News	15	Tuner	20	Scan	62
Set	16	Tape	10	Repeat	54
Band	13	Aux/DCC	04	Prog/Review	53
Clock Set	12	Power	08	Clear	58
Mono	11	High Speed Dubbing	07	Edit	57
Preset Down	17	Volume Up	03	Stop	59
Preset Up	18	Volume Down	19	Play/Pause	55
Prog	01			Open/close	63
Autoprog	05			Next	56
Tuning Up	02			Previous	60
Tuning Down	06			Disc 1	49
				Disc 2	50
				Disc 3	51
				Disc 4	52
				Disc 5	64
				Disc 6	45
				Disc 7	46

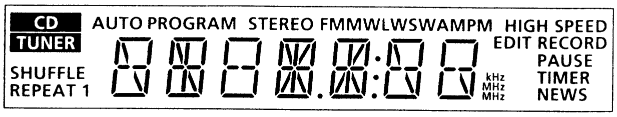
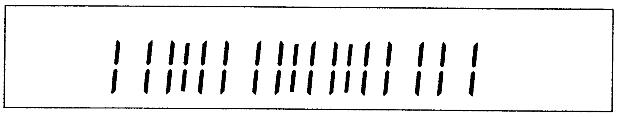
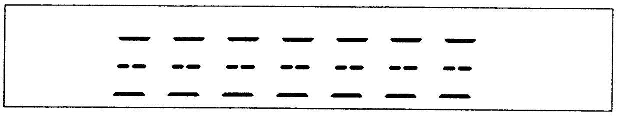
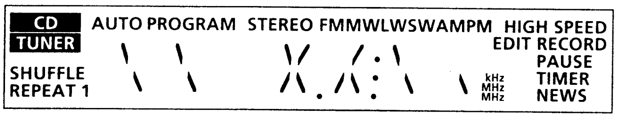
TABLE 2. SERVICE REMOTE CONTROL KEY TEST TABLE

Function/Tuner keys	Display	CD keys	Display
News	15 RC	CD	09 RC
Standby	29 RC	Pause	38 RC
Volume up (+)	03 RC	Stop	59 RC
Volume down (-)	19 RC	Play	37 RC
Tuner	20 RC	Previous	34 RC
Preset down	17 RC	Next	33 RC
Preset up	18 RC	Disc	47 RC

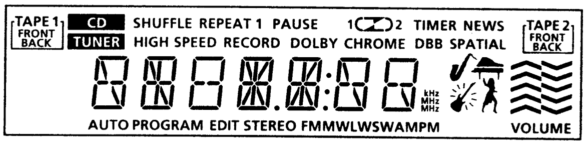
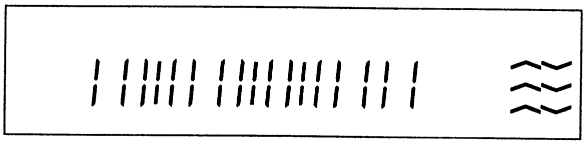
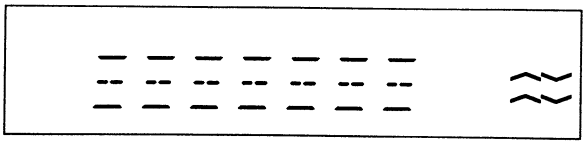
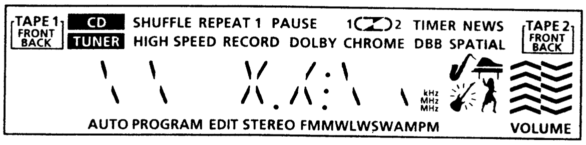
Note: "RC" disappears when the key is released.

Table 3. Display and Disc indicators

For /37 only

Steps	LCD display	Disc indicator
1	 CD TUNER AUTO PROGRAM STEREO FMMWLWSWAMPM HIGH SPEED EDIT RECORD PAUSE SHUFFLE REPEAT 1 kHz MHz MHz TIMER NEWS	Fully on
2		Red for odd numbers Green for even numbers
3		Green for odd numbers Red for even numbers
4	 CD TUNER AUTO PROGRAM STEREO FMMWLWSWAMPM HIGH SPEED EDIT RECORD PAUSE SHUFFLE REPEAT 1 kHz MHz MHz TIMER NEWS	Fully off

For other versions

Steps	LCD display	Disc indicator
1	 TAPE 1 FRONT BACK CD TUNER SHUFFLE REPEAT 1 PAUSE 1 2 TIMER NEWS HIGH SPEED RECORD DOLBY CHROME DBB SPATIAL TAPE 2 FRONT BACK kHz MHz MHz AUTO PROGRAM EDIT STEREO FMMWLWSWAMPM VOLUME	Fully on
2		Red for odd numbers Green for even numbers
3		Green for odd numbers Red for even numbers
4	 TAPE 1 FRONT BACK CD TUNER SHUFFLE REPEAT 1 PAUSE 1 2 TIMER NEWS HIGH SPEED RECORD DOLBY CHROME DBB SPATIAL TAPE 2 FRONT BACK kHz MHz MHz AUTO PROGRAM EDIT STEREO FMMWLWSWAMPM VOLUME	Fully off

SERVICE TEST PROGRAM 2

Operating sequence	Display shows	Remarks	In case of problems check
To perform CDC test press "CD" at the Main menu screen. Service level 1 is now achieved.	CDC AA	The CDC servo version is display. AA = version number	Pressing "Power" key at the Main menu screen will to exit Service test and enter into Service Play mode. The set will perform as normal except in the CD mode error codes will be displayed. A list of error codes are found in Table 4.
Press "Next"	SLED O	The sledge will move outward.	
Press "Prev"	SLED I	The sledge will move inward.	
Press "Shuffle"	PLAY	Start the Turntable motor in the play direction.	
Press "Scan"	STOP	Start the Turntable motor in the brake direction.	
Press "Stop" will exit CDC test and return to Main menu.			
Press "Play" - Service level 2	FOC 1	Laser is turned on and focus is achieved.	Check the laser and focus circuits if the display shows FOC 0
Press "Stop"		Return to Service level 1.	
Press "Play" - Service level 3	DISC	Disc motor start to turn.	
Press "Stop"		Return to Service level 1.	
Press "Play"	RDL	The Radial servo turns on and music can be heard at the Loudspeakers.	
Press "Stop"		Return to Service level 1.	
To perform Tuner test press "Tuner" at the Main menu screen.	ZZZ	Tuner version is display. ZZZ = Tuner version	
Use the "Preset Up" and "Preset down" to display the loaded frequencies.	See Table 5.	Service frequencies are now loaded into the EEROM of the µProcessor.	
To end the Service test program disrupt the mains supply.			Ending the Service test by pressing the "Power" key from the Main menu will render: * CD error codes to be displayed. * Tuner "Program" and "Autoprogram" keys are deactivated.

TABLE 4. CD ERROR CODES TABLE

Error codes		Error description
E 1002	F	Focus error
E 1008	W	Out of lead-in during reading TOC
E 1010	F	Radial error
E 1011	W	Sledge error
E 1012	F	Fatal sledge error
E 1013	F	Turntable motor error
E 1042	F	Internal stack overflow
E 1050	W	Edit calculation error
E 1070	F	Centering of the tray not finished on time
E 1071	F	Tray closing not finished within time
E 1072	F	Tray has not opened within time
E 1076	W	Desired disc position could not have been reached within time
E 1077	F	Pickup Switch SW1 or SW2 did not open as expected within a certain time
E 1078	F	Pickup Switch SW1 or SW2 did not close as expected within a certain time
E 1079	W	Tray open position not reached within time
E 1080	F	Miscounting of the stocker position occured, position was correct at position 1.

Note: F = Fatal error and set stops operation
W = Warning and set continues operation

TABLE 5. TUNER SERVICE TEST FREQUENCIES

PRESET	Europe "EUR"	East Eur. "EAS"	USA "USA"	Oversea "OSC"	Japan "JAP"
1	108.00 MHz	108.00 MHz	108.00 MHz	108.00 MHz	90.00 MHz
2	87.50 MHz	65.81 MHz	87.50 MHz	87.50 MHz	76.00 MHz
3	1611 kHz	1611 kHz	1710 kHz	1710 kHz	1629 kHz
4	522 kHz	522 kHz	530 kHz	530 kHz	522 kHz
5	279 kHz	279 kHz	-	-	-
6	153 kHz	153 kHz	-	-	-
7	98.00 MHz	98.00 MHz	98.00 MHz	98.00 MHz	80.00 MHz
8	558 kHz	558 kHz	560 kHz	560 kHz	558 kHz
9	1494kHz	1494kHz	1500kHz	1500kHz	1494kHz
10	549kHz	549kHz	550kHz	550kHz	549kHz

TRADE MODE

Operating sequence	Display shows	Remarks
At the standby mode, hold the "Program" key depressed for 2-3 seconds. To exit Trade mode repeat the above procedure or activate the set with the Remote control.	Commercial story	The set performs normally except the Commercial story will be displayed after 6 seconds whenever the set is placed into standby mode.

TAPE MECHANISM ADJUSTMENT

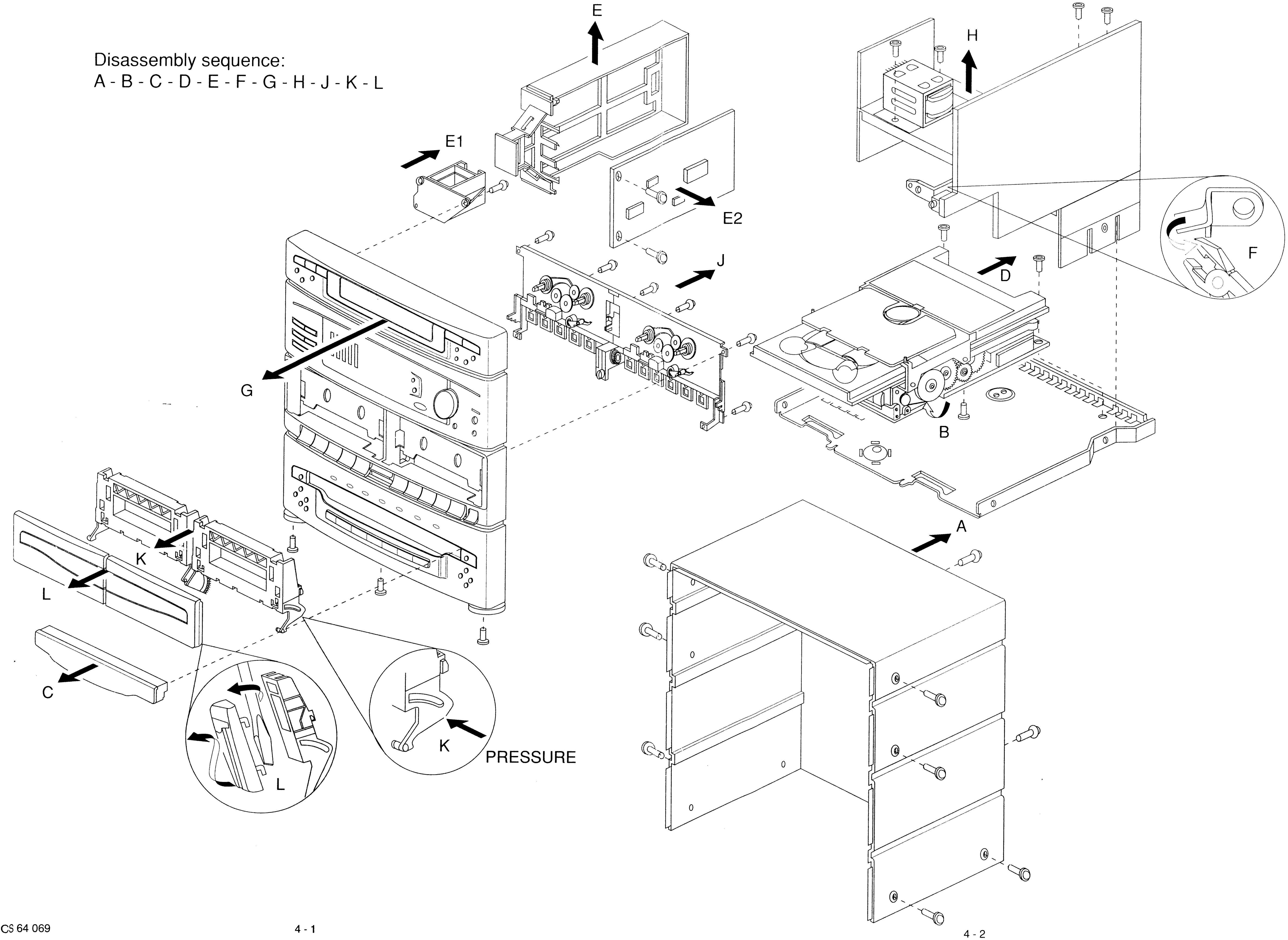
ADJUSTMENT	CASSETTE	DECK 1	DECK 2	MEASURE ON	READ ON	ADJUST WITH	ADJUST TO
Azimuth	10kHz	Play	-	1550	mV-meter	Left hand screw of Play or R/P head	Maximum
	SBC420*	-	Play				L = R
Motor speed	3150Hz	Play	-	1550	Wow and Futter meter	Preset in motor	** a
	SBC420*	-	Play			-	

* SBC420: 4822 397 30071

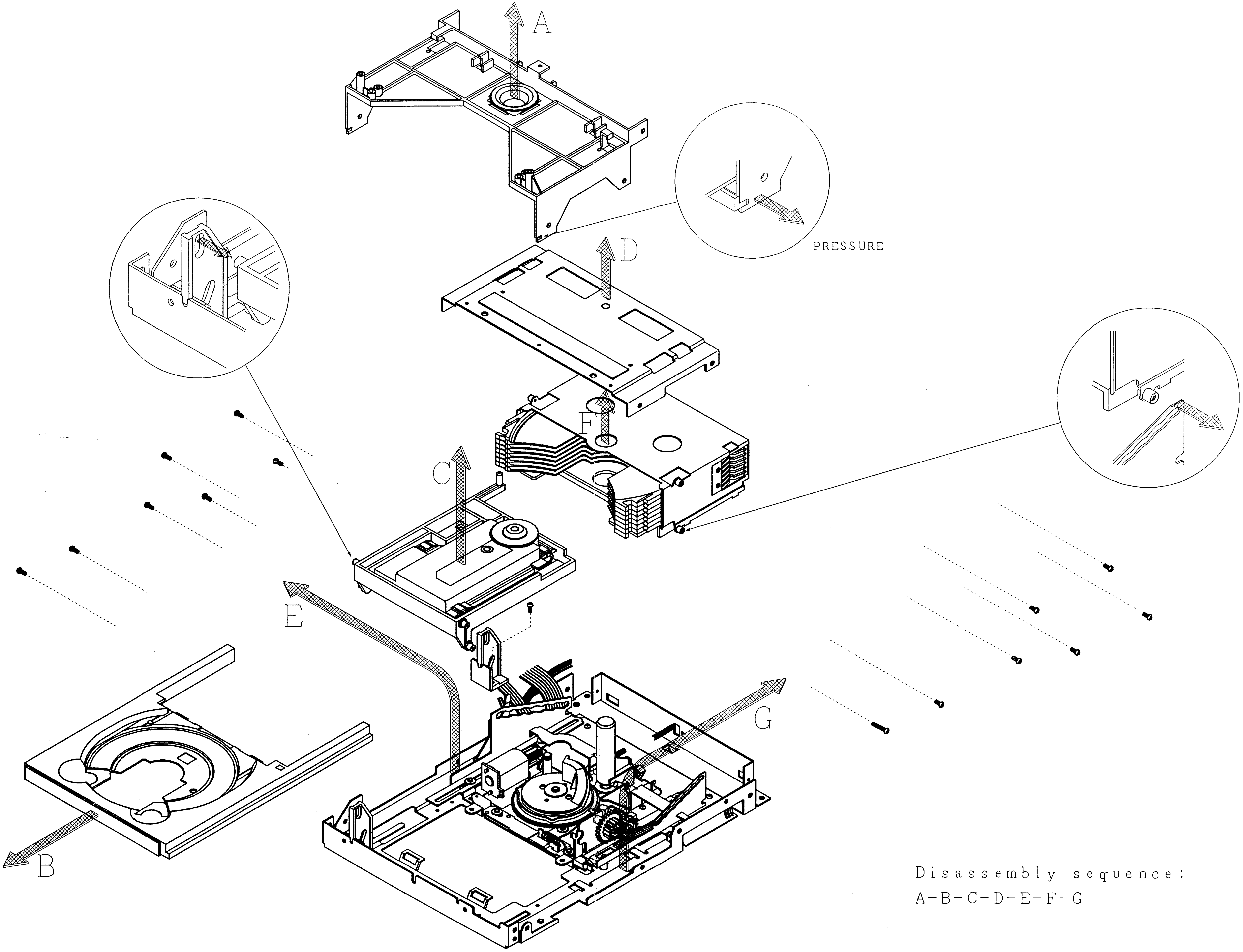
** a The maximum permissible speed deviation is 2%.
Moreover, the wow and flutter value can be read.
This value should not exceed 0.4%.

DISASSEMBLY DRAWING

Disassembly sequence:
A - B - C - D - E - F - G - H - J - K - L

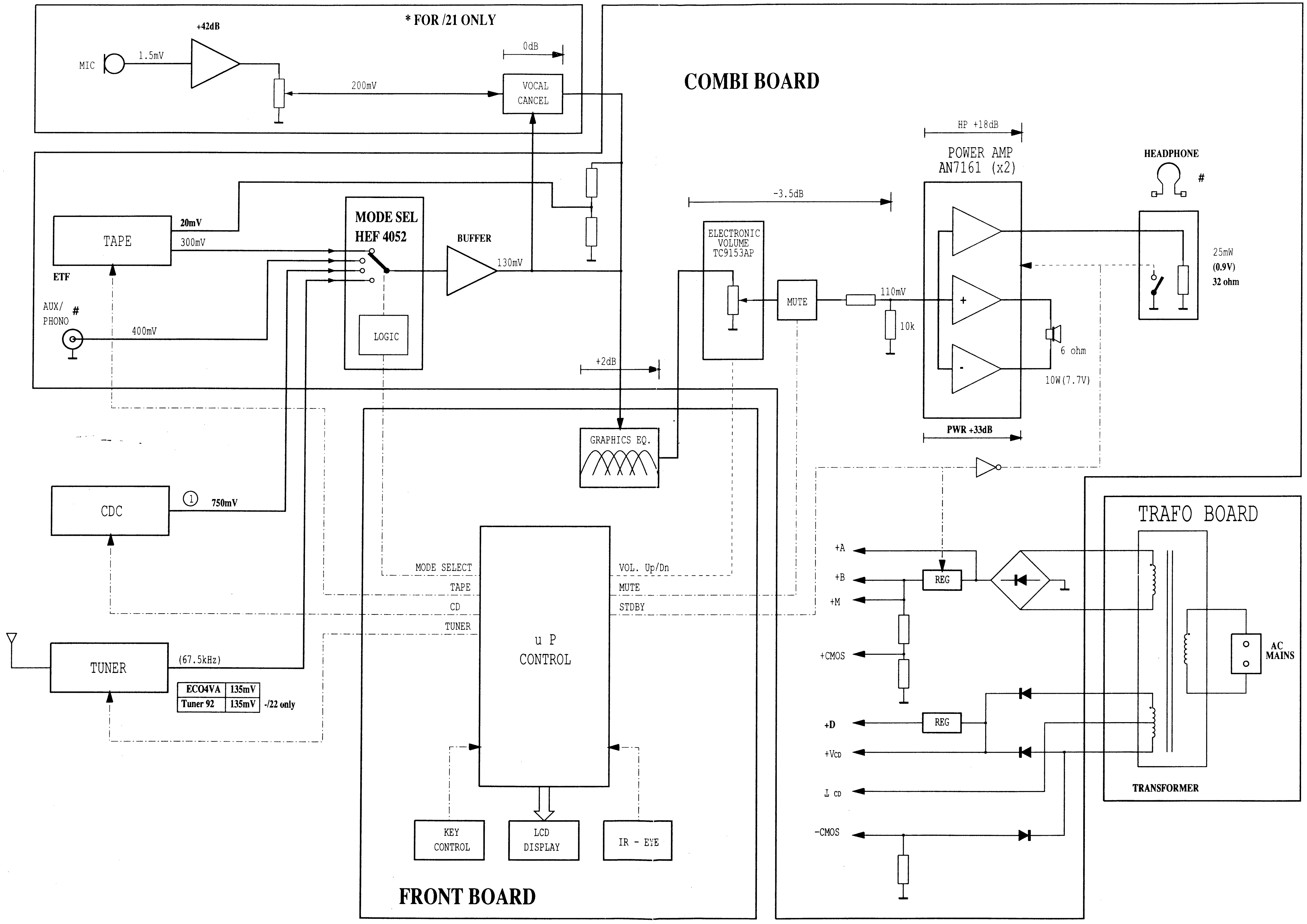

E
H
E1
E2
J
D
F
G
B
A
K
L
C
K
PRESSURE
L

CDC DISASSEMBLY DRAWING


A
PRESSURE
D
F
C
E
G
B

Disassembly sequence:
A-B-C-D-E-F-G

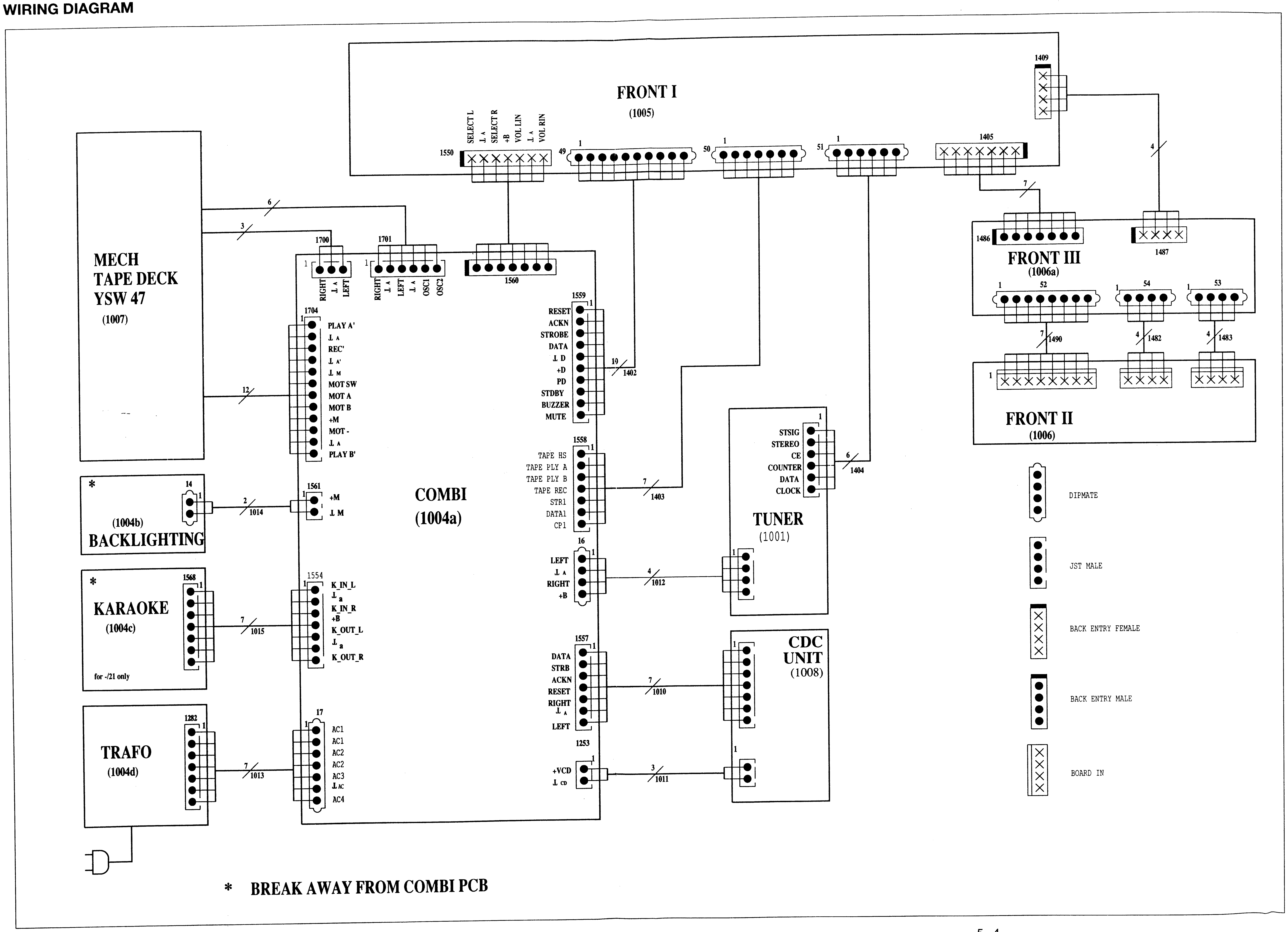
BLOCK DIAGRAM


* FOR /21 ONLY
+42dB
MIC
1.5mV
200mV
0dB
VOCAL CANCEL
COMBI BOARD
TAPE
20mV
300mV
ETF
AUX/ PHONO
#
400mV
MODE SEL
HEF 4052
LOGIC
BUFFER
130mV
+2dB
-3.5dB
ELECTRONIC VOLUME TC9153AP
MUTE
110mV
10k
HP +18dB
POWER AMP
AN7161 (x2)
+
-
6 ohm
10W(7.7V)
PWR +33dB
HEADPHONE
#
25mW
(0.9V)
32 ohm
GRAPHICS EQ.
CDC
①
750mV
TUNER
(67.5kHz)
ECO4VA
135mV
Tuner 92
135mV
-/22 only
MODE SELECT
TAPE
CD
TUNER
VOL. Up/Dn
MUTE
STDBY
u P
CONTROL
KEY CONTROL
LCD DISPLAY
IR - EYE
FRONT BOARD
+A
+B
+M
+CMOS
+D
+Vcd
⊥ cd
-CMOS
REG
REG
TRAFO BOARD
AC MAINS
TRANSFORMER

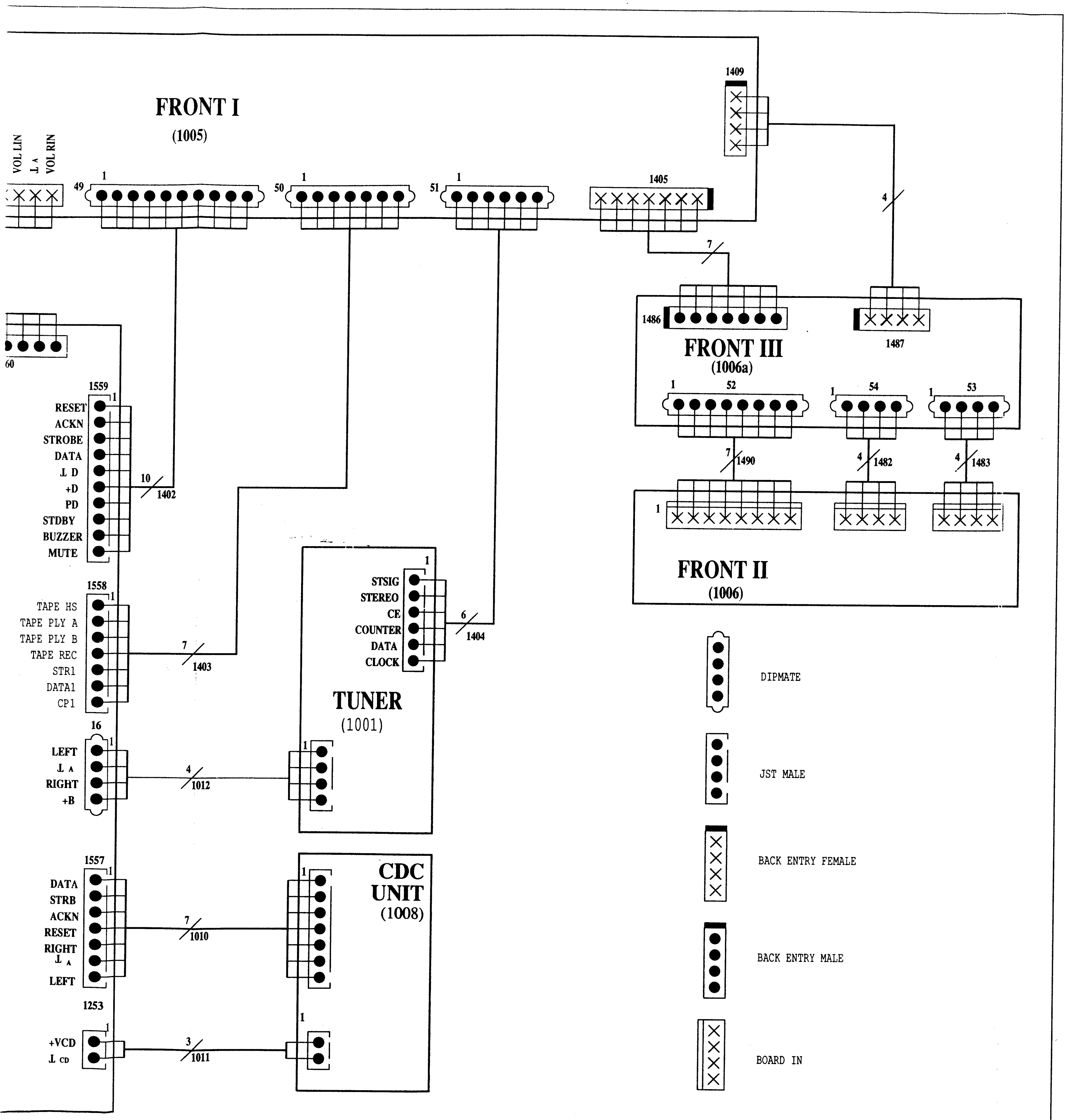
① CD : + 2.5dB WITH -6dB disc

NOT FOR /37

WIRING DIAGRAM


FRONT I
(1005)
1550
SELECT L
⊥A
SELECT R
+B
VOL LIN
⊥A
VOL RIN
49
50
51
1
1405
1409
MECH
TAPE DECK
YSW 47
(1007)
6
3
12
1700
1701
1560
RIGHT
⊥A
LEFT
RIGHT
⊥A
LEFT
⊥A
OSC1
OSC2
1704
PLAY A'
⊥A
REC'
⊥A'
⊥M
MOT SW
MOT A
MOT B
+M
MOT -
⊥A
PLAY B'
1559
RESET
ACKN
STROBE
DATA
⊥D
+D
PD
STDBY
BUZZER
MUTE
19
1402
1558
TAPE HS
TAPE PLY A
TAPE PLY B
TAPE REC
STR1
DATA1
CP1
7
1403
16
LEFT
⊥A
RIGHT
+B
4
1012
1557
DATA
STRB
ACKN
RESET
RIGHT
⊥A
LEFT
7
1010
1253
+VCD
⊥CD
3
1011
COMBI
(1004a)
*
14
(1004b)
BACKLIGHTING
2
1014
1561
+M
⊥M
*
1568
KARAOKE
(1004c)
for -/21 only
7
1015
1554
K_IN_L
⊥a
K_IN_R
+B
K_OUT_L
⊥a
K_OUT_R
TRAFO
(1004d)
1282
7
1013
17
AC1
AC1
AC2
AC2
AC3
⊥AC
AC4
TUNER
(1001)
STSIG
STEREO
CE
COUNTER
DATA
CLOCK
6
1404
CDC
UNIT
(1008)
4
7
1486
1487
FRONT III
(1006a)
52
54
53
7
1490
4
1482
4
1483
FRONT II
(1006)
DIPMATE
JST MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
BOARD IN

* BREAK AWAY FROM COMBI PCB


FRONT I
(1005)
VOL LIN
⊥ A
VOL RIN
49
50
51
1
1405
1409
4
7
1486
FRONT III
(1006a)
1487
52
54
53
1490
1482
1483
FRONT II
(1006)
60
1559
RESET
ACKN
STROBE
DATA
⊥ D
+D
PD
STDBY
BUZZER
MUTE
10
1402
1558
TAPE HS
TAPE PLY A
TAPE PLY B
TAPE REC
STR1
DATA1
CP1
7
1403
STSIG
STEREO
CE
COUNTER
DATA
CLOCK
6
1404
TUNER
(1001)
16
LEFT
⊥ A
RIGHT
+B
4
1012
1557
DATA
STRB
ACKN
RESET
RIGHT
⊥ A
LEFT
7
1010
CDC
UNIT
(1008)
1253
+VCD
⊥ CD
3
1011
DIPMATE
JST MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
BOARD IN

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

**CLASS 1
LASER PRODUCT**
3122 110 03420

(GB) Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

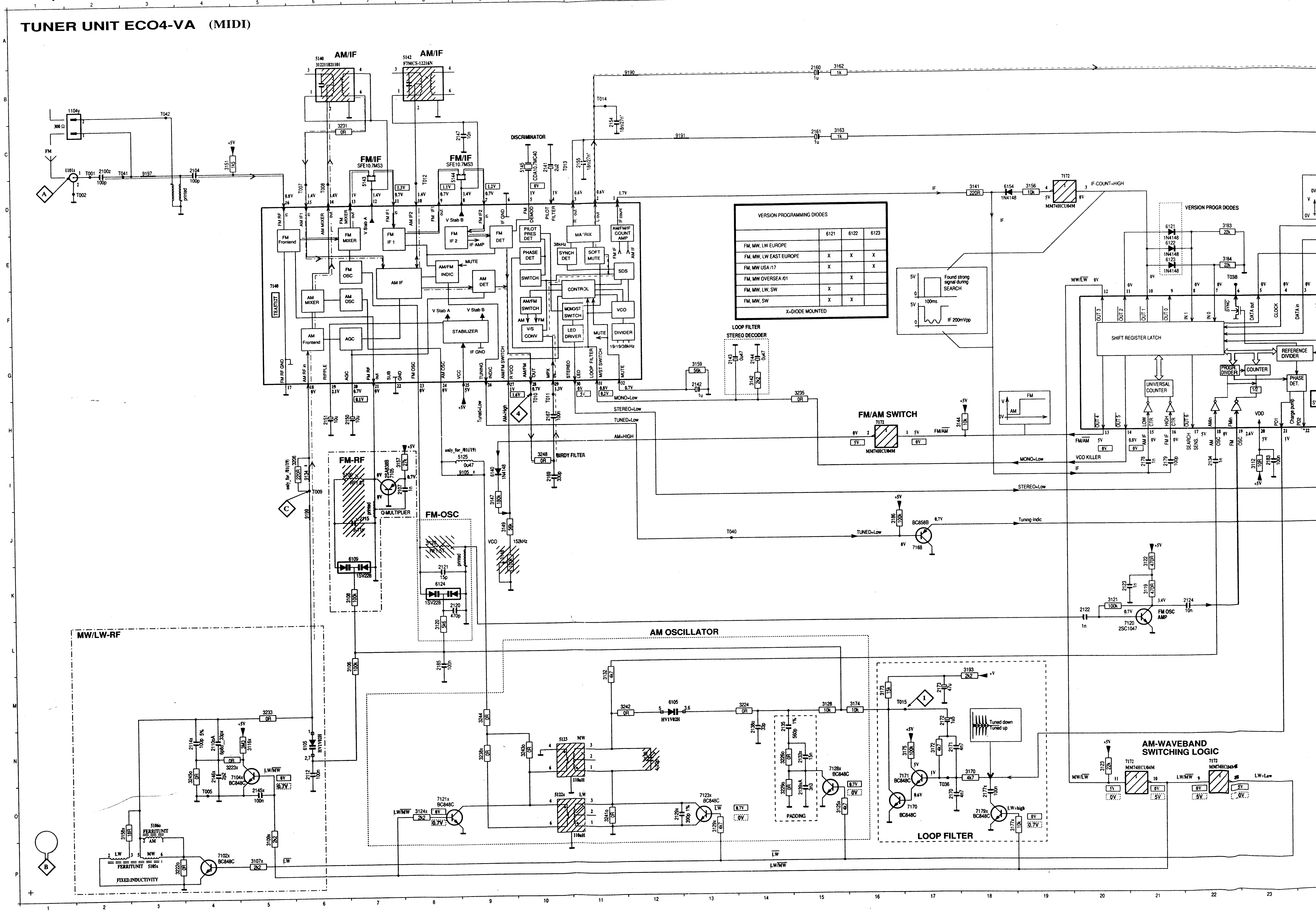
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

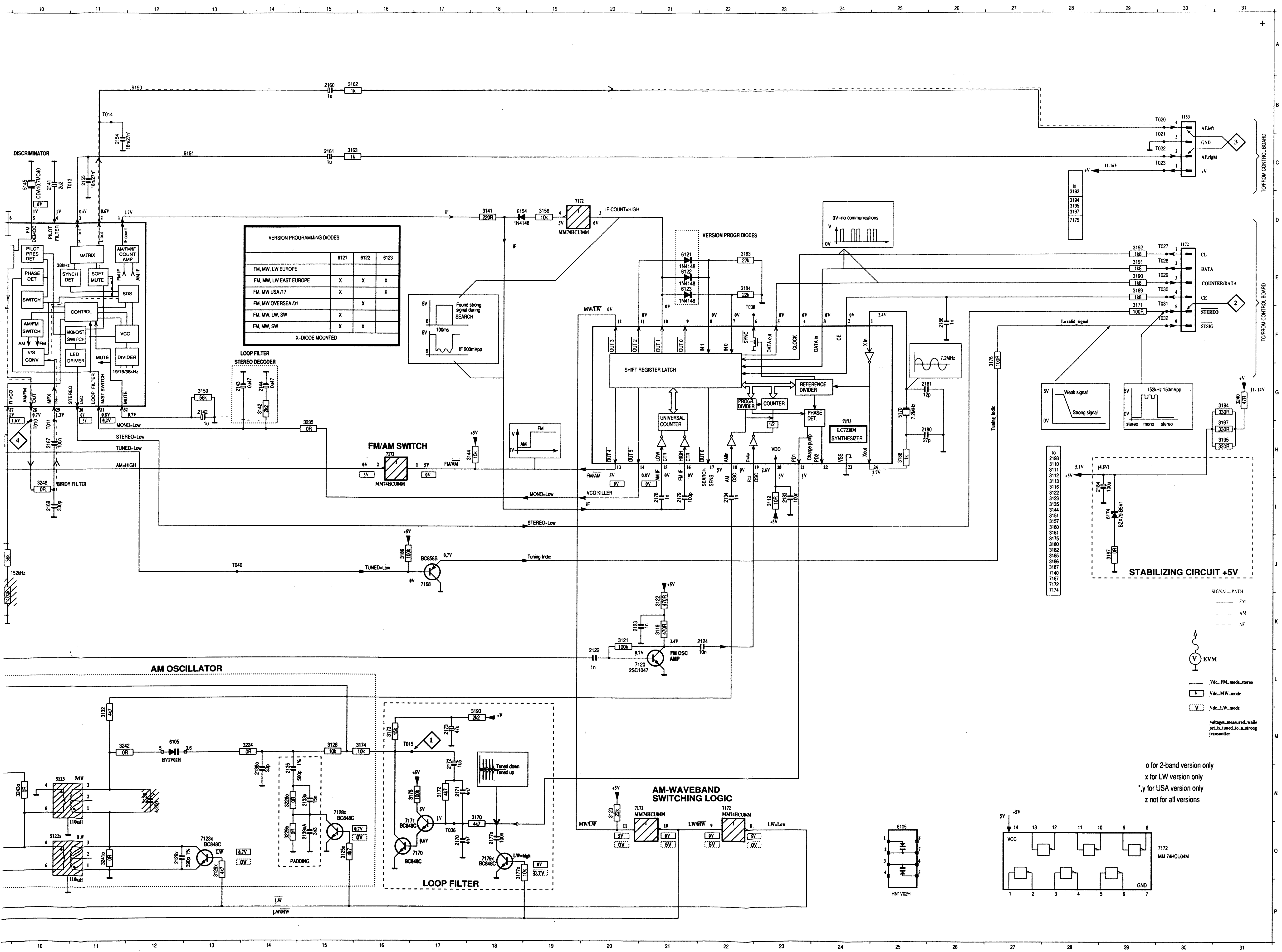
EC04VA CIRCUIT (Not For /22)

TUNER UNIT ECO4-VA (MIDI)



AM/IF
5140
AM/IF
5142
F7MCS-12216N
FM/IF
SFE10.7MS3
FM/IF
SFE10.7MS3
DISCRIMINATOR
CDA10.7MC40
1104y
300 Ω
FM
1101z
T001
T002
T041
T042
9197
9190
9191
T014
FM Frontend
FM MIXER
FM IF 1
FM IF 2
IF AMP
FM DET
PILOT PRES DET
MATRIX
AM/FM/IF COUNT AMP
FM OSC
AM IF
AM/FM INDIC
MUTE
AM DET
PHASE DET
SYNCH DET
SOFT MUTE
SDS
SWITCH
CONTROL
AM MIXER
AM OSC
AM/FM SWITCH
MONOST SWITCH
VCO
AM Frontend
AGC
STABILIZER
V/S CONV
LED DRIVER
DIVIDER
19/19/38kHz
V Stab A
V Stab B
IF GND
7140
TEA5712T
FM RF GND
AM RF in
RIPPLE
AGC
FM RF out
SUB GND
FM OSC
AM OSC
VCC
TUNING INDIC
AM/FM SWITCH
R VCO
AM/FM OUT
MPX
STEREO
LED
LOOP FILTER
M/ST SWITCH
MUTE
LOOP FILTER
STEREO DECODER
MONO=Low
STEREO=Low
TUNED=Low
AM=HIGH
FM-RF
Q-MULTIPLIER
2SA838B
7105
1SV228
6109
FM-OSC
6124
1SV228
only_for_/01(/19)
5125
0u47
9105
BIRDY FILTER
152kHz
VCO
T009
T040
Tuning-Indic
BC858B
7168
FM/AM SWITCH
7172
MM74HCU04M
IF-COUNT=HIGH
VERSION PROGR DIODES
6121 1N4148
6122 1N4148
6123 1N4148
T038
Found strong signal during SEARCH
100ms
IF 200mVpp
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
REFERENCE DIVIDER
PROGR. DIVIDER
COUNTER
PHASE DET.
1/2
MONO=Low
VCO KILLER
STEREO=Low
FM/AM
MW/LW
FM OSC AMP
7120
2SC1047
MW/LW-RF
AM OSCILLATOR
5123 MW
5122x LW
110uH
HV1V02H
6105
PADDING
7128x BC848C
7121x BC848C
7123x BC848C
LOOP FILTER
T015
Tuned down
Tuned up
7171 BC848C
7170 BC848C
7179x BC848C
LW=high
T036
AM-WAVEBAND SWITCHING LOGIC
7172 MM74HCU04M
LW=Low
5106a FERRITUNIT AM
FERRITUNIT 5105x
FIXED INDUCTIVITY
7102x BC848C
7104x BC848C
T005
LW
LW/MW

VERSION PROGRAMMING DIODES	6121	6122	6123
FM, MW, LW EUROPE			
FM, MW, LW EAST EUROPE	X	X	X
FM, MW USA /17	X		X
FM, MW OVERSEA /01		X	
FM, MW, LW, SW	X		
FM, MW, SW	X	X	
X=DIODE MOUNTED			


DISCRIMINATOR
FM DEMOD
PILOT FILTER
PILOT PRES DET
PHASE DET
SWITCH
AM/FM SWITCH
V/S CONV
MATRIX
SYNCH DET
SOFT MUTE
SDS
CONTROL
MONO/ST SWITCH
LED DRIVER
MUTE
VCO
DIVIDER
19/19/38kHz
AM/FM/IF COUNT AMP
38kHz
LOOP FILTER
STEREO DECODER
MONO=Low
STEREO=Low
TUNED=Low
AM=HIGH
BIRDY FILTER
152kHz
FM/AM SWITCH
MM74HCU04M
IF-COUNT=HIGH
VERSION PROGR DIODES
0V=no communications
Found strong signal during SEARCH
100ms
IF 200mVpp
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
PROGR. DIVIDER
COUNTER
REFERENCE DIVIDER
PHASE DET.
LC7218M SYNTHESIZER
7.2MHz
VCO KILLER
Tuning-Indic
BC858B
FM OSC AMP
2SC1047
AM OSCILLATOR
HV1V02H
PADDING
LOOP FILTER
Tuned down
Tuned up
AM-WAVEBAND SWITCHING LOGIC
LW=high
LW=Low
HN1V02H
MM 74HCU04M
VCC
GND
CL
DATA
COUNTER/DATA
CE
STEREO
STSIG
L=valid_signal
AF.left
GND
AF.right
TO/FROM CONTROL BOARD
Weak signal
Strong signal
152kHz 150mVpp
stereo mono stereo
STABILIZING CIRCUIT +5V
11-16V
11-14V

VERSION PROGRAMMING DIODES	6121	6122	6123
FM, MW, LW EUROPE			
FM, MW, LW EAST EUROPE	X	X	X
FM, MW USA /17	X		X
FM, MW OVERSEA /01		X	
FM, MW, LW, SW	X		
FM, MW, SW	X	X	
X=DIODE MOUNTED			

SIGNAL...PATH
——— FM
— · — AM
- - - AF

EVM

.... Vdc...FM...mode...stereo
V Vdc...MW...mode
V Vdc...LW...mode

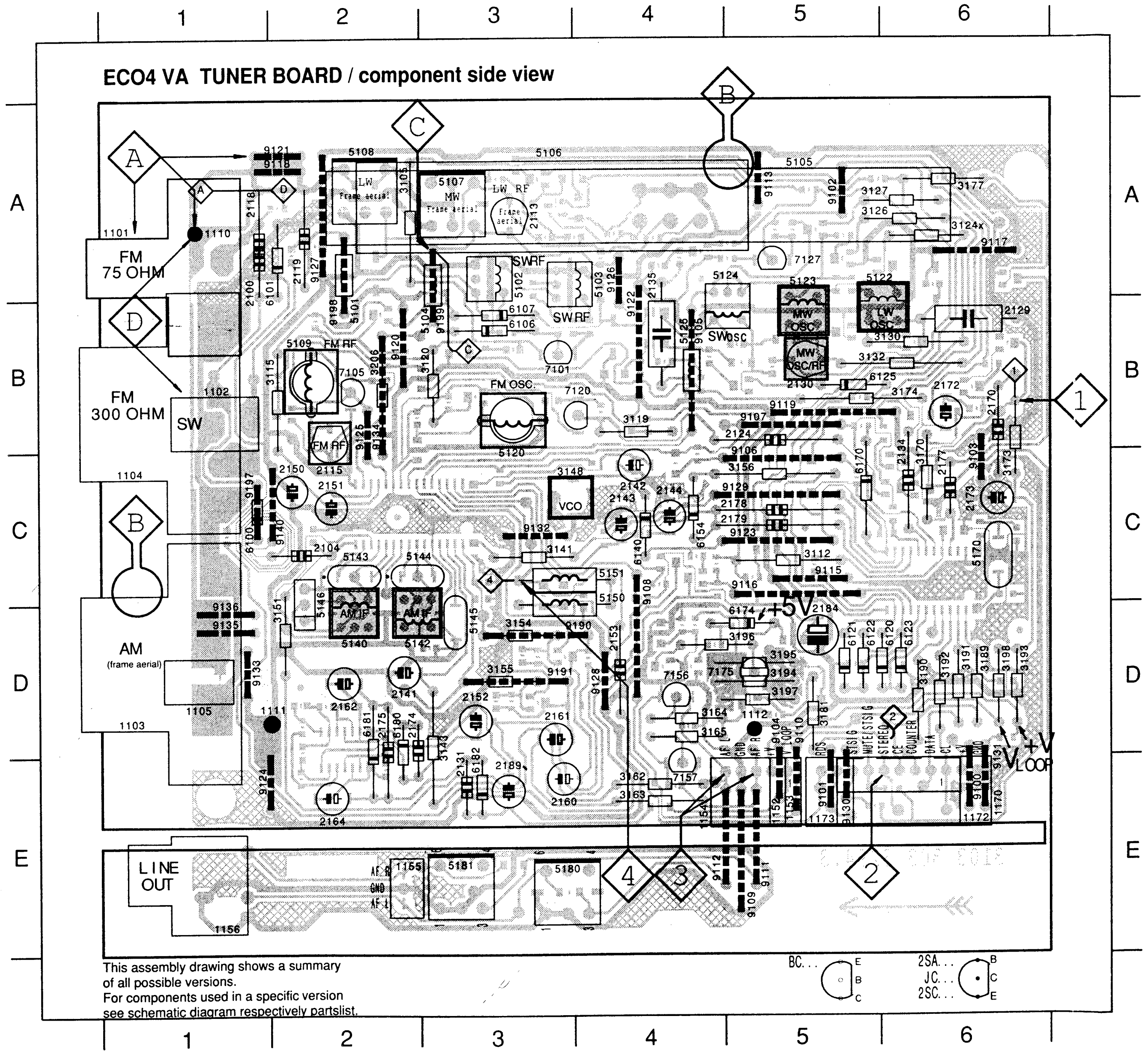
voltages...measured...while set...is...tuned...to...a...strong transmitter

o for 2-band version only
x for LW version only
*,y for USA version only
z not for all versions

1101z	C 1
1104y	C 2
1153	B30
1172	D30
2100z	C 2
2104	C 4
2107	I 8
2110o	N 4
2112	N 6
2114x	N 4
2115	J 7
2120	K 8
2121	K 8
2122	K20
2123	K20
2124	K22
2129x	O12
2130	N12
2133x	N15
2134	I22
2135	N14
2138o	N14
2139x	O15
2141	C10
2142	G13
2143	G13
2144	G14
2145x	O 5
2146x	N 4
2147	C 9
2150	H 7
2151	H 6
2154	C11
2155	C12
2160	B15
2161	C15
2167	H10
2169	I10
2170	O17
2171	N17
2172	M17
2173	M17
2177x	O18
2178	I21
2179	I21
2180	H25
2181	G25
2183	I23
2184	I29
2185	L 8
2186	F26
3106	L 7
3107x	P 5
3108	K 7
3109x	O 5
3112	I23
3116x	L 4
3119	K21
3120	L 8
3121	K20
3122	K21
3123	N20
3124x	O 8
3125x	O15
3128	M15
3129x	O13
3132	M12
3141	D18
3142	G14
3144	H18
3147	I 9
3148	J 9
3149	J 9
3151	C 4
3156	D19
3157	I 7
3158x	O 2
3159	G13
3162	B15
3163	C15
3167	J29
3170	N18
3171	F29
3172	N17
3173	M16
3174	M16
3175	N17
3176	F27
3177x	O18
3183	E22
3184	E22
3186	J14
3188	H25
3189	E29
3190	E29
3191	E29
3192	E29
3193	M18
3194	G31
3195	H31
3197	H31
3206	I 6
3222o	P 3
3223x	N 4
3224	M14
3226o	N14
3229o	O14
3231	C 7
3233	M 5
3235	H15
3238x	N 9
3240	G31
3241o	O11
3242	N11
3243o	N10
3244	M 9
3245o	N 4
3248	I10
5105x	P 2
5106o	O 3
5109	I 7
5120	J 8
5122x	O10
5123	N10
5125	I 9
5140	A 6
5142	A 8
5143	D 7
5144	D 9
5145	C10
5170	G25
6105	M12
6105	N5
6109	J 7
6121	E21
6122	E21
6123	E21
6124	K 8
6140	I 9
6154	D18
6174	I29
7102x	P 4
7104x	N 5
7105	I 7
7120	L20
7121x	O 8
7123x	O13
7128x	N15
7140	E 5
7168	J17
7170	O17
7171	O17
7172	H16
7172	D20
7172	O20
7172	N22
7172	N20
7172	O22
7173	H24
7179x	O18
9105	I 9
9134	I 6
9190	B12
9191	C13
9197	C 3
9199	J 6
T001	C 2
T002	D 2
T005	O 4
T007	D 6
T008	D 6
T009	I 6
T010	H10
T011	H10
T012	C 8
T013	C11
T014	B11
T015	M16
T020	B29
T021	C29
T022	C29
T023	C29
T027	D30
T028	E30
T029	E30
T030	E30
T031	E30
T032	F30
T036	O17
T038	F22
T040	J13
T041	C 2
T042	B 3

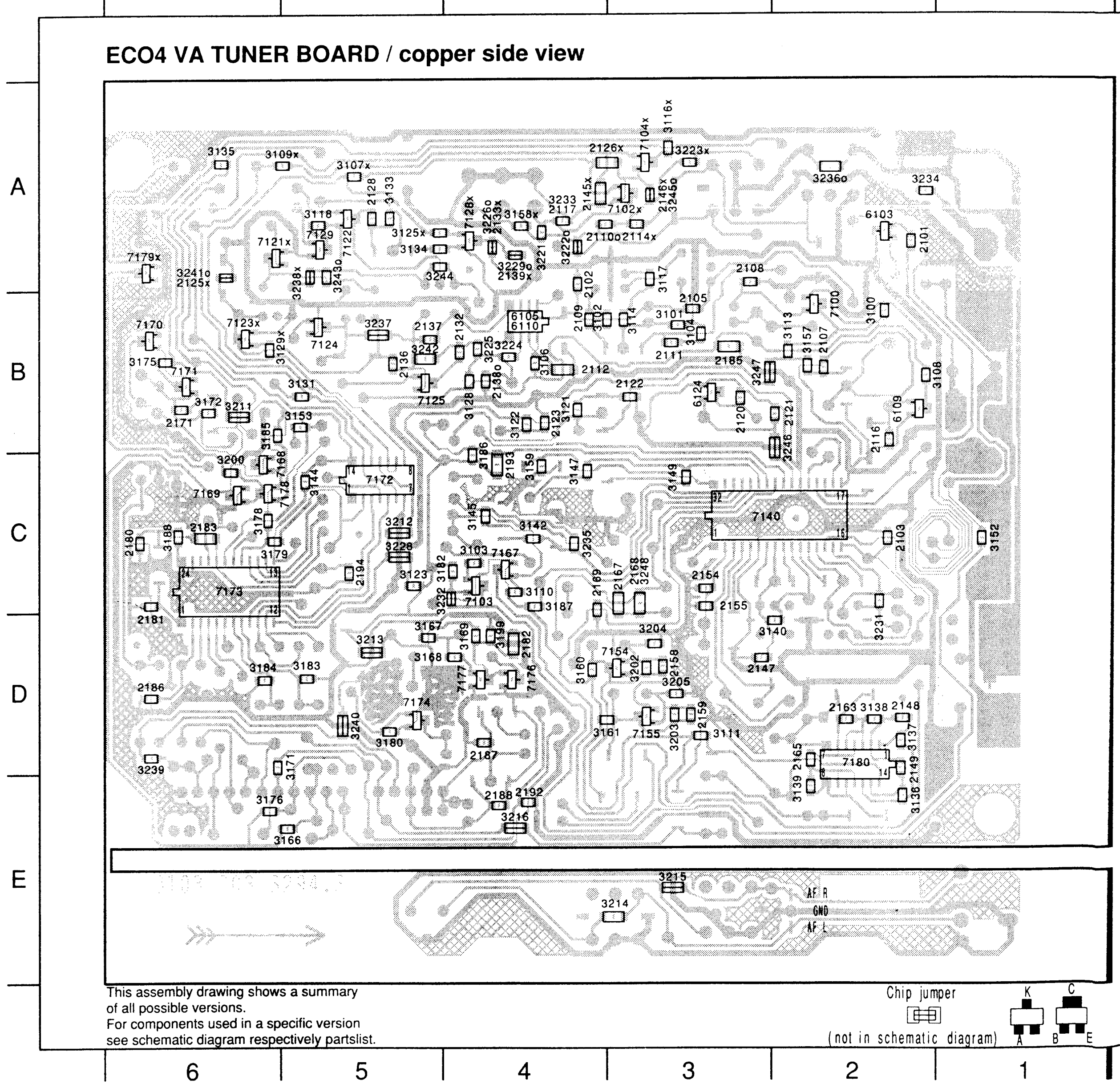
EC04VA LAYOUT (Not For /22)

1101 A 1	1156 E 1	2100 A 1	2135 B 4	2164 E 2	2191 A 6	3143 D 3	3174 B 5	3198 D 6	5122 B 6	5170 C 6	6140 C 4	7157 E 4	9110 E 5	9123 C 5	9135 D 1
1102 B 1	1170 E 6	2104 C 2	2141 D 2	2170 B 6	3105 A 2	3148 C 3	3177 A 6	3206 B 2	5123 B 5	5180 E 3	6154 C 4	7175 D 5	9111 E 5	9124 E 1	9136 D 1
1103 D 1	1172 E 6	2106 B 4	2142 C 4	2172 B 6	3112 C 5	3151 D 2	3181 D 5	5101 A 2	5124 B 5	5181 E 3	6170 C 5	9100 E 6	9112 E 4	9125 B 2	9140 C 2
1104 B 1	1173 E 5	2113 A 3	2143 C 4	2173 C 6	3115 B 2	3154 D 3	3189 D 6	5102 A 3	5125 B 4	6100 C 1	6174 D 5	9101 E 5	9113 A 5	9126 A 4	9190 D 3
1105 D 1		2115 B 2	2144 C 4	2174 D 2	3119 B 4	3155 D 3	3190 D 6	5103 A 3	5140 D 2	6101 A 2	6180 D 2	9102 A 5	9115 C 5	9127 A 2	9191 D 3
1110 A 1		2118 A 1	2150 C 2	2175 D 2	3120 B 3	3156 C 5	3191 D 6	5104 A 3	5142 D 2	6106 B 3	6181 D 2	9103 C 6	9116 C 5	9128 D 4	9197 C 1
1111 D 2		2119 A 2	2151 C 2	2177 C 6	3124 A 6	3162 E 4	3192 D 6	5105 A 4	5143 C 2	6107 B 3	6182 E 3	9104 E 5	9117 A 6	9129 C 5	9198 A 2
1112 D 5		2124 B 5	2152 D 3	2178 C 5	3126 A 6	3163 E 4	3193 D 6	5106 A 4	5144 C 2	6120 D 6	7101 B 3	9105 B 4	9118 A 2	9130 E 5	9199 A 3
1152 E 5		2129 B 6	2153 D 4	2179 C 5	3127 A 6	3164 D 4	3194 D 5	5107 A 3	5145 D 3	6121 D 5	7105 B 2	9106 C 5	9119 B 5	9131 E 6	o for AM-version only
1153 E 5		2130 B 5	2160 E 3	2184 D 5	3130 B 6	3165 D 4	3195 D 5	5108 A 2	5146 D 2	6122 D 5	7120 B 4	9107 B 5	9120 B 2	9132 C 3	x for LW-version only
1154 E 4		2131 E 3	2161 D 3	2189 E 3	3132 B 6	3170 C 6	3196 D 4	5109 B 2	5150 D 3	6123 D 6	7127 A 5	9108 D 4	9121 A 2	9133 D 1	y for USA version only
1155 E 2		2134 C 6	2162 D 2	2190 A 2	3141 C 3	3173 B 6	3197 D 5	5120 B 3	5151 C 3	6125 B 5	7156 D 4	9109 E 5	9122 B 4	9134 B 2	z not for all versions



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

2101 A 2	2122 B 3	2149 D 2	2185 B 3	3109x A 5	3133 A 5	3157 B 2	3180 D 5	3212 C 5	3233 A 4	3248 C 3	7128x A 4	7178 C 6
2102 A 4	2123 B 4	2154 C 3	2186 D 6	3110 C 4	3134 A 5	3158x A 4	3182 C 4	3213 D 5	3234 A 2	6103 A 2	7129 A 5	7179x A 6
2103 C 2	2125x A 6	2155 C 3	2187 D 4	3111 D 3	3135 A 6	3159 C 4	3183 D 5	3214 E 3	3235 C 4	6105 B 4	7140 C 2	7180 D 2
2105 B 3	2126x A 3	2158 D 3	2188 E 4	3113 B 2	3136 E 2	3160 D 4	3184 D 6	3215 E 3	3236o A 2	6109 B 2	7154 D 3	
2107 B 2	2128 A 5	2159 D 3	2192 E 4	3114 B 3	3137 D 2	3161 D 3	3185 B 6	3216 E 4	3237 B 5	6110 B 4	7155 D 3	
2108 A 3	2132 B 4	2163 D 2	2193 C 4	3116x A 3	3138 D 2	3166 E 5	3186 C 4	3221 A 4	3238x A 5	6124 B 3	7167 C 4	
2109 B 4	2133x A 4	2165 E 2	2194 C 5	3117 A 3	3139 D 2	3167 D 5	3187 C 4	3222o A 4	3239 D 6	7100 B 2	7168 C 6	
2110o A 4	2136 B 5	2167 C 3	3100 B 2	3118 A 5	3140 D 2	3168 D 4	3188 C 6	3223x A 3	3240 D 5	7102x A 3	7169 C 6	o for AM-version only
2111 B 3	2137 B 5	2168 C 3	3101 B 3	3121 B 4	3142 C 4	3169 D 4	3199 D 4	3224 B 4	3241o A 6	7103 C 4	7170 B 6	x for LW-version only
2112 B 4	2138o B 4	2169 C 4	3102 B 3	3122 B 4	3144 C 5	3171 D 6	3200 C 6	3225 B 4	3242 B 5	7104x A 3	7171 B 6	y for USA version only
2114x A 3	2139x A 4	2171 B 6	3103 C 4	3123 C 5	3145 C 4	3172 B 6	3202 D 3	3226o A 4	3243o A 5	7121x A 6	7172 C 5	z not for all versions
2116 B 2	2145x A 4	2180 C 6	3104 B 3	3125x A 5	3147 C 4	3175 B 6	3203 D 3	3228 C 5	3244 A 5	7122 A 5	7173 C 6	
2117 A 4	2146x A 3	2181 C 6	3106 B 4	3128 B 4	3149 C 3	3176 E 6	3204 D 3	3229o A 4	3245o A 3	7123x B 6	7174 D 5	
2120 B 3	2147 D 3	2182 D 4	3107x A 5	3129x B 6	3152 C 1	3178 C 6	3205 D 3	3231 C 2	3246 B 2	7124 B 5	7176 D 4	
2121 B 2	2148 D 2	2183 C 6	3108 B 2	3131 B 5	3153 B 5	3179 C 6	3211 B 6	3232 C 4	3247 B 3	7125 B 5	7177 D 4	


6
5
4
3
2
1
A
B
C
D
E
ECO4 VA TUNER BOARD / copper side view
AF R
GND
AF L
Chip jumper
(not in schematic diagram)
K
C
A
B
E

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

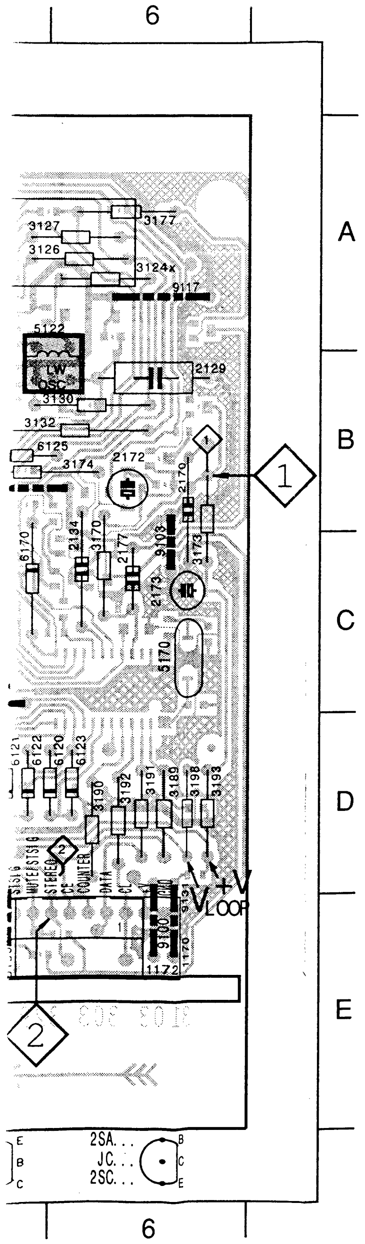
TUN

VAR
FM
87
FM /
65
MW
2-banc
53
LW
15
MW
3-t
52
FM -
FM
FM /
Ea
VCO
FM
AM -
MW
AM -
LW
MW
3-
MW
2-banc

* Use
1) Adju
brac
repe

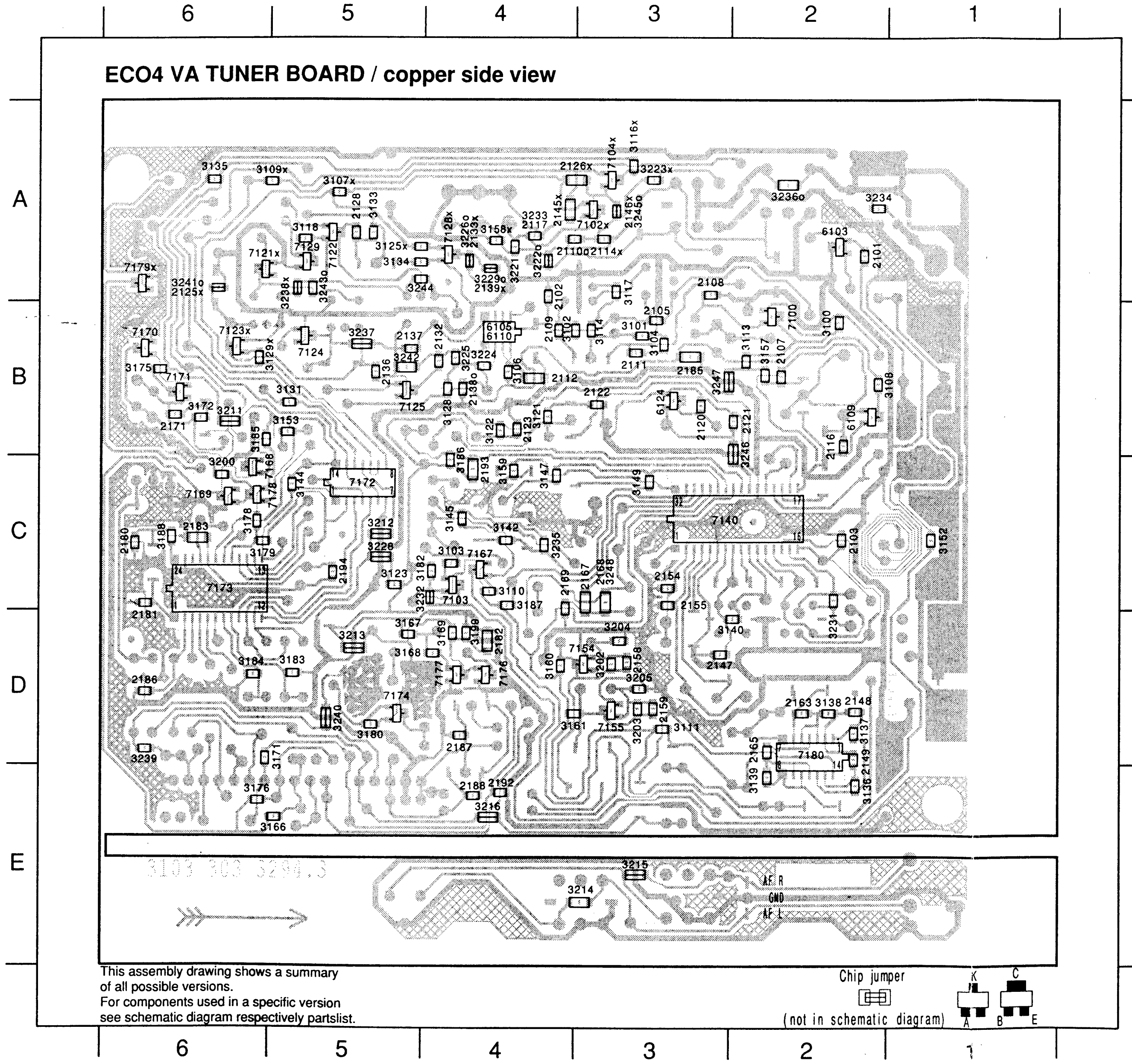
E 4	9110	E 5	9123	C 5	9135	D 1
D 5	9111	E 5	9124	E 1	9136	D 1
E 6	9112	E 4	9125	B 2	9140	C 2
E 5	9113	A 5	9126	A 4	9190	D 3
A 5	9115	C 5	9127	A 2	9191	D 3
C 6	9116	C 5	9128	D 4	9197	C 1
E 5	9117	A 6	9129	C 5	9198	A 2
B 4	9118	A 2	9130	E 5	9199	A 3
C 5	9119	B 5	9131	E 6		
B 5	9120	B 2	9132	C 3		
D 4	9121	A 2	9133	D 1		
E 5	9122	B 4	9134	B 2		

o for AM-version only
x for LW-version only
y for USA version only
z not for all versions


6
A
B
C
D
E
3177
3127
3126
3124x
9117
5122
LW OSC
3130
2129
3132
6125
3174
2172
2170
1
2
+V
V LOOP
5170
2SA...
JC...
2SC...
6

2101	A 2	2122	B 3	2149	D 2	2185	B 3	3109x	A 5	3133	A 5	3157	B 2	3180	D 5	3212	C 5	3233	A 4	3248	C 3	7128x	A 4	7178	C 6
2102	A 4	2123	B 4	2154	C 3	2186	D 6	3110	C 4	3134	A 5	3158x	A 4	3182	C 4	3213	D 5	3234	A 2	6103	A 2	7129	A 5	7179x	A 6
2103	C 2	2125x	A 6	2155	C 3	2187	D 4	3111	D 3	3135	A 6	3159	C 4	3183	D 5	3214	E 3	3235	C 4	6105	B 4	7140	C 2	7180	D 2
2105	B 3	2126x	A 3	2158	D 3	2188	E 4	3113	B 2	3136	E 2	3160	D 4	3184	D 6	3215	E 3	3236o	A 2	6109	B 2	7154	D 3		
2107	B 2	2128	A 5	2159	D 3	2192	E 4	3114	B 3	3137	D 2	3161	D 3	3185	B 6	3216	E 4	3237	B 5	6110	B 4	7155	D 3		
2108	A 3	2132	B 4	2163	D 2	2193	C 4	3116x	A 3	3138	D 2	3166	E 5	3186	C 4	3221	A 4	3238x	A 5	6124	B 3	7167	C 4		
2109	B 4	2133x	A 4	2165	E 2	2194	C 5	3117	A 3	3139	D 2	3167	D 5	3187	C 4	3222o	A 4	3239	D 6	7100	B 2	7168	C 6		
2110o	A 4	2136	B 5	2167	C 3	3100	B 2	3118	A 5	3140	D 2	3168	D 4	3188	C 6	3223x	A 3	3240	D 5	7102x	A 3	7169	C 6		
2111	B 3	2137	B 5	2168	C 3	3101	B 3	3121	B 4	3142	C 4	3169	D 4	3199	D 4	3224	B 4	3241o	A 6	7103	C 4	7170	B 6		
2112	B 4	2138o	B 4	2169	C 4	3102	B 3	3122	B 4	3144	C 5	3171	D 6	3200	C 6	3225	B 4	3242	B 5	7104x	A 3	7171	B 6		
2114x	A 3	2139x	A 4	2171	B 6	3103	C 4	3123	C 5	3145	C 4	3172	B 6	3202	D 3	3226o	A 4	3243o	A 5	7121x	A 6	7172	C 5		
2116	B 2	2145x	A 4	2180	C 6	3104	B 3	3125x	A 5	3147	C 4	3175	B 6	3203	D 3	3228	C 5	3244	A 5	7122	A 5	7173	C 6		
2117	A 4	2146x	A 3	2181	C 6	3106	B 4	3128	B 4	3149	C 3	3176	E 6	3204	D 3	3229o	A 4	3245o	A 3	7123x	B 6	7174	D 5		
2120	B 3	2147	D 3	2182	D 4	3107x	A 5	3129x	B 6	3152	C 1	3178	C 6	3205	D 3	3231	C 2	3246	B 2	7124	B 5	7176	D 4		
2121	B 2	2148	D 2	2183	C 6	3108	B 2	3131	B 5	3153	B 5	3179	C 6	3211	B 6	3232	C 4	3247	B 3	7125	B 5	7177	D 4		

o for AM-version only
x for LW-version only
y for USA version only
z not for all versions


6
5
4
3
2
1
A
B
C
D
E
3135
3109x
3107x
2126x
7104x
3116x
3223x
3236o
3234
6103
2101
7179x
3241o
2125x
7121x
7129
3125x
3134
3244
3158x
3233
7102x
2110o
2114x
2108
7170
7123x
7124
3237
2137
6105
6110
3224
3101
2105
2111
3175
7171
3172
3211
2171
3131
3153
7125
2112
2122
2185
6124
3113
3157
7100
3100
3108
6109
2116
7172
3200
7169
3212
3228
3142
3103
7167
3110
3187
2154
2155
7140
2103
3152
2180
2183
7173
2181
3179
3123
2194
7103
3213
3168
3167
3204
3140
2147
2186
3184
3183
7174
3180
2187
3161
7155
3111
7154
2163
3138
2148
3239
3176
2188
2192
3216
3166
7180
3214
3215
AF R
GND
AF L

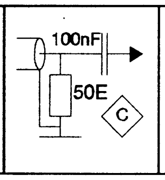
ECO4 VA TUNER BOARD / copper side view

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Chip jumper

(not in schematic diagram)

TUNER Adjustment table (ECO4 VA FM/MW- and FM/MW/LW - versions with AM-ferrite antenna)

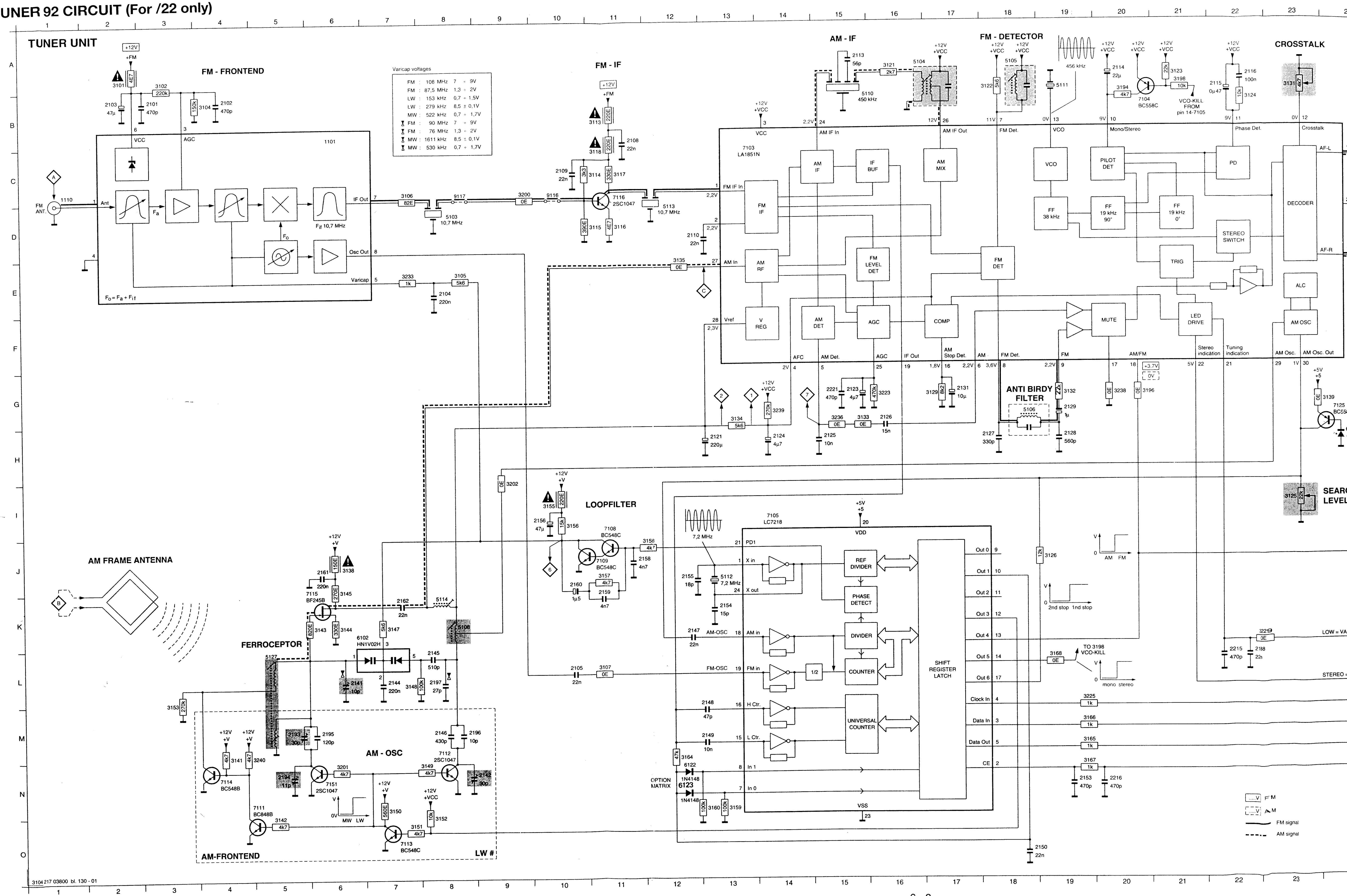
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT * 1)						
FM 87.5 - 108MHz			108 MHz	5120	◇ 1	8V ± 0.2V
			87.5MHz	check		4.1V ± 0.5V
FM /14 East Europe 65.81 - 108MHz			108 MHz	5120		8V ± 0.2V
			65.81 MHz	check		0.8V ± 0.4V
MW 2-band version, 10kHz grid 530 - 1710kHz			1710kHz	5123		9V±0.1V (7.2±1.2V) 1)
			530kHz	check		1V±0.4V (1.1±0.5V) 1)
LW 153 - 279kHz			279kHz	5122		8V±0.2V (7.5±1.5V) 1)
			153kHz	check		1V±0.4V (1.1±0.5V) 1)
MW 3-band version 522 - 1611kHz			1611kHz	5123		8V±0.1V (7.2±1.2V) 1)
			522kHz	check		1V±0.4V (1.1±0.5V) 1)
FM - RF						
FM	108MHz	◇ A mod=1kHz Δf=22.5kHz	108MHz	2115	◇ 3	MAX ↕
	87.5MHz		87.5MHz	5109		
FM /14 East Europe	108MHz		108MHz	2115		
	65.81MHz		65.81MHz	5109		
VCO						
FM	98 MHz, 1mV continuous wave	◇ A	98MHz	3148	◇ 2	152kHz ± 1kHz
AM - IF						
MW	540kHz Δf = 10kHz as low as possible	 100nF 50E ◇ C	540kHz	5142 5140	◇ 4	symmetrical and max height
AM - RF						
LW	198kHz	◇ B mod=1kHz 30% AM	198kHz	5122	◇ 4	MAX
MW 3-band version	1494kHz		1494kHz	2130		
	549kHz		549kHz	5123		
MW 2-band version, 10kHz grid	1500kHz		1500kHz	2130		MAX ↕
	550kHz		550kHz	5123		

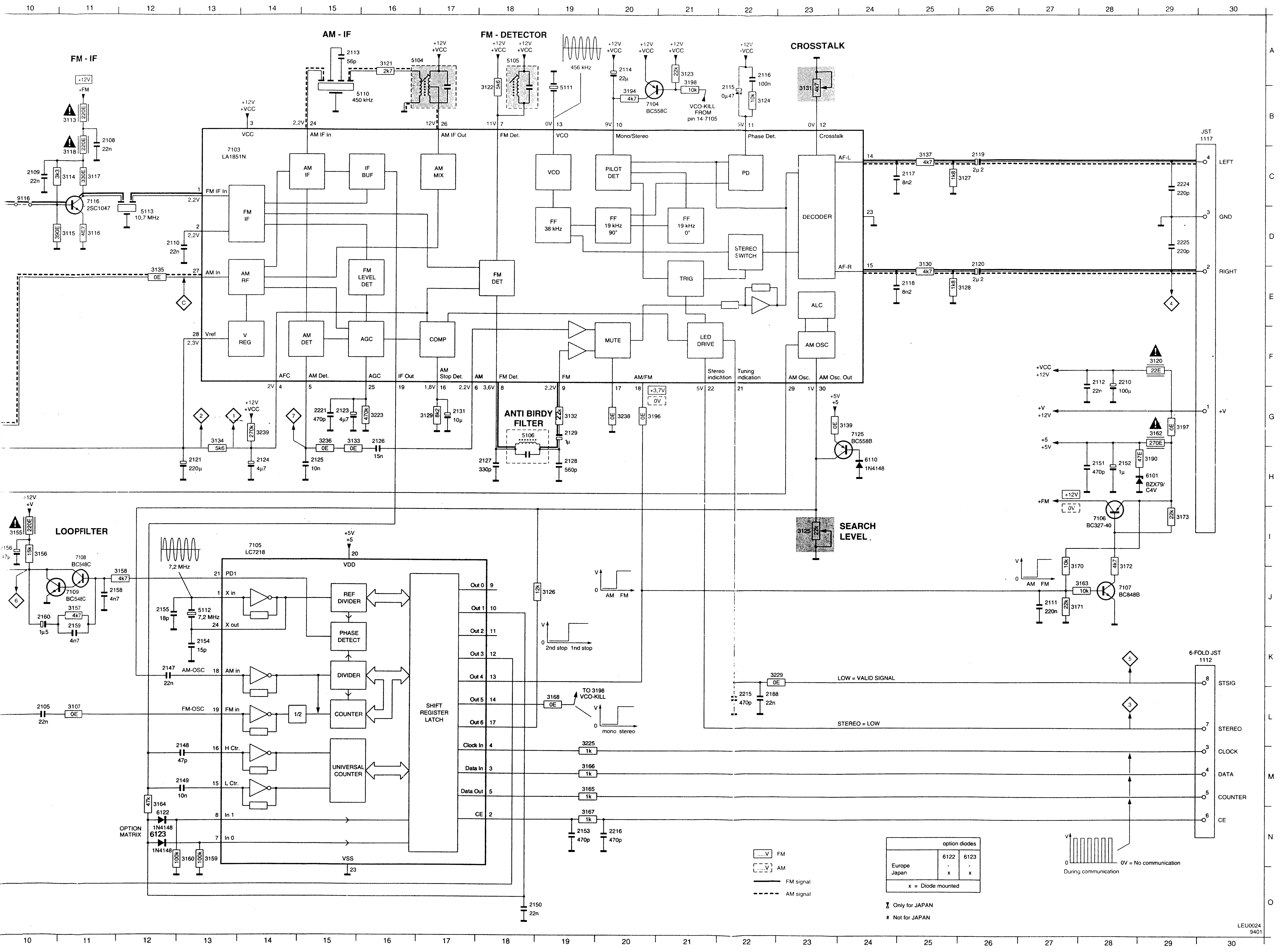
* Use Service Test Program. By selecting the TUNER TEST, test frequencies will be stored as preset frequ. automatically.

1) Adjustment of AM-RF stage influences the varicap voltage. Therefore check if varicap voltage fulfils values stated within brackets after AM-RF adjustment.

↕ repeat

TUNER 92 CIRCUIT (For /22 only)


TUNER UNIT
FM - FRONTEND
Varicap voltages
FM : 108 MHz 7 ÷ 9V
FM : 87,5 MHz 1,3 ÷ 2V
LW : 153 kHz 0,7 ÷ 1,5V
LW : 279 kHz 8,5 ± 0,1V
MW : 522 kHz 0,7 ÷ 1,7V
FM : 90 MHz 7 ÷ 9V
FM : 76 MHz 1,3 ÷ 2V
MW : 1611 kHz 8,5 ± 0,1V
MW : 530 kHz 0,7 ÷ 1,7V
FM - IF
AM - IF
FM - DETECTOR
456 kHz
CROSSTALK
1101
VCC
AGC
Ant
IF Out
Osc Out
Varicap
F₀ = Fₐ + F_if
F_if 10,7 MHz
FM ANT.
1110
7103
LA1851N
FM IF In
AM IF In
AM IF Out
FM Det.
VCO
Mono/Stereo
Phase Det.
Crosstalk
AF-L
AF-R
AM In
Vref
FM IF
AM RF
V REG
AM IF
IF BUF
AM MIX
AM DET
AGC
COMP
FM LEVEL DET
FM DET
FF 38 kHz
FF 19 kHz 90°
FF 19 kHz 0°
PILOT DET
PD
STEREO SWITCH
TRIG
DECODER
MUTE
LED DRIVE
ALC
AM OSC
AFC
AM Det.
IF Out
AM Stop Det.
AM
FM
AM/FM
Stereo indication
Tuning indication
AM Osc.
AM Osc. Out
5110 450 kHz
5103 10,7 MHz
5113 10,7 MHz
7116 2SC1047
7104 BC558C
VCO-KILL FROM pin 14-7105
ANTI BIRDY FILTER
5106
SEARCH LEVEL
LOOPFILTER
7108 BC548C
7109 BC548C
7105 LC7218
7,2 MHz
5112 7,2 MHz
PD1
X in
X out
AM in
FM in
H Ctr.
L Ctr.
In 1
In 0
VDD
VSS
REF DIVIDER
PHASE DETECT
DIVIDER
COUNTER
UNIVERSAL COUNTER
1/2
SHIFT REGISTER LATCH
Out 0
Out 1
Out 2
Out 3
Out 4
Out 5
Out 6
Clock In
Data In
Data Out
CE
AM-OSC
FM-OSC
AM FM
2nd stop 1nd stop
TO 3198 VCO-KILL
mono stereo
LOW = VA
STEREO
OPTION MATRIX
6122 1N4148
6123 1N4148
AM FRAME ANTENNA
FERROCEPTOR
5127
7115 BF245B
6102 HN1V02H
5114
5108
AM - OSC
7114 BC548B
7151 2SC1047
7112 2SC1047
7111 BC848B
7113 BC548C
MW LW
AM-FRONTEND
LW #
7125 BC55
FM signal
AM signal
3104 217 03800 bl. 130 - 01

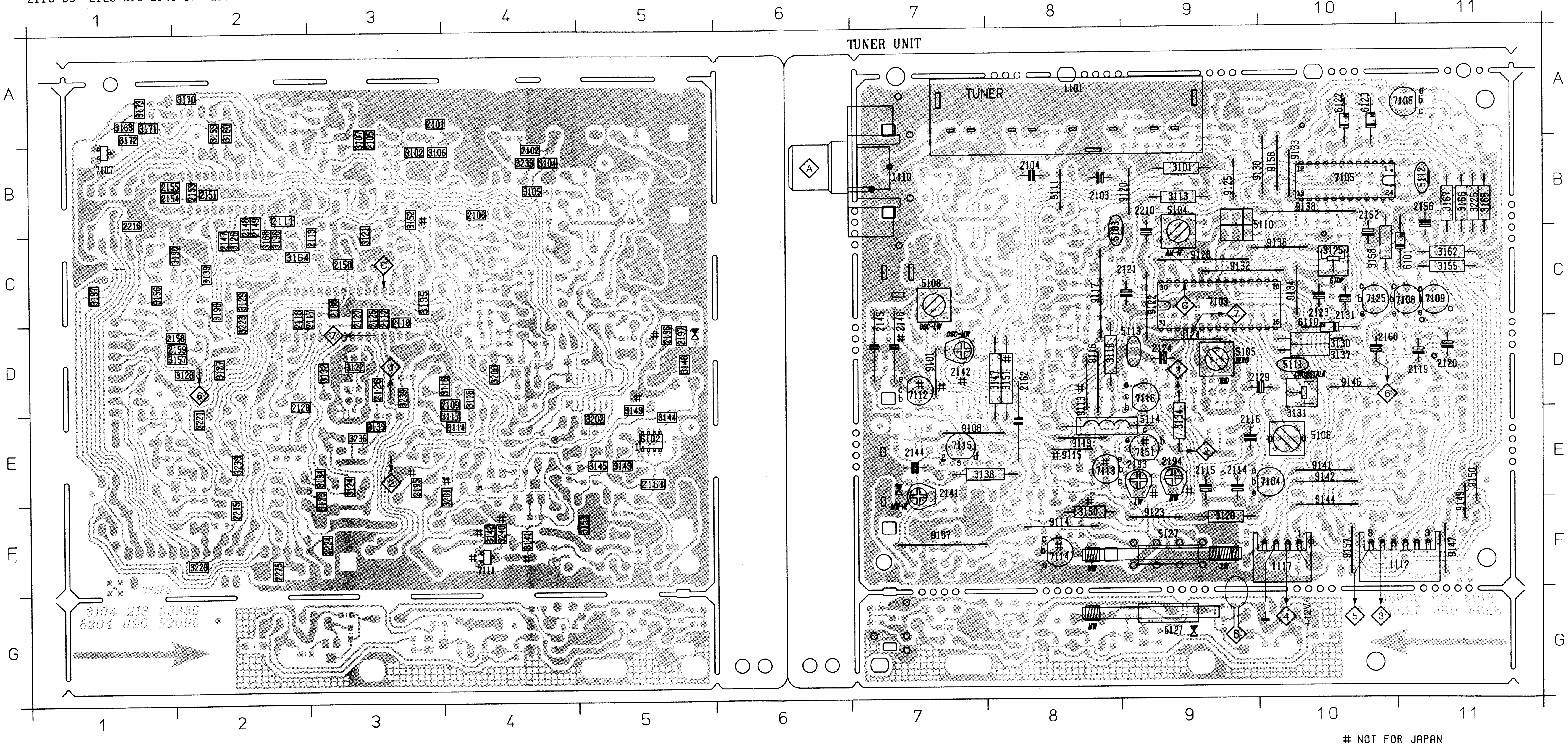

FM - IF
AM - IF
FM - DETECTOR
CROSSTALK
ANTI BIRDY FILTER
SEARCH LEVEL
LOOPFILTER
OPTION MATRIX
7103 LA1851N
7105 LC7218
FM IF In
AM In
Vref
VCC
AM IF In
AM IF Out
FM Det.
VCO
Mono/Stereo
Phase Det.
Crosstalk
AF-L
AF-R
AFC
AM Det.
AGC
IF Out
AM Stop Det.
AM
FM
AM/FM
Stereo indication
Tuning indication
AM Osc.
AM Osc. Out
FM IF
AM RF
V REG
AM IF
IF BUF
AM MIX
AM DET
FM LEVEL DET
AGC
COMP
FM DET
VCO
FF 38 kHz
PILOT DET
FF 19 kHz 90°
FF 19 kHz 0°
PD
TRIG
STEREO SWITCH
DECODER
MUTE
LED DRIVE
ALC
AM OSC
450 kHz
456 kHz
10,7 MHz
7,2 MHz
VCO-KILL FROM pin 14-7105
TO 3198 VCO-KILL
JST 1117
LEFT
GND
RIGHT
+V
6-FOLD JST 1112
STSIG
STEREO
CLOCK
DATA
COUNTER
CE
LOW = VALID SIGNAL
STEREO = LOW
PD1
X in
X out
AM in
FM in
H Ctr.
L Ctr.
In 1
In 0
VDD
VSS
REF DIVIDER
PHASE DETECT
DIVIDER
1/2
COUNTER
UNIVERSAL COUNTER
SHIFT REGISTER LATCH
Out 0
Out 1
Out 2
Out 3
Out 4
Out 5
Out 6
Clock In
Data In
Data Out
CE
AM-OSC
FM-OSC
AM FM
2nd stop 1nd stop
mono stereo
During communication
0V = No communication
7116 2SC1047
7104 BC558C
7125 BC558B
7106 BC327-40
7107 BC848B
7108 BC548C
7109 BC548C
6101 BZX79/C4V
6110 1N4148
6122 1N4148
6123 1N4148
....V FM
....V AM
FM signal
AM signal
Only for JAPAN
Not for JAPAN
LEU0024
9401

	option diodes	
	6122	6123
Europe	-	-
Japan	x	x
x = Diode mounted		

1101	B6
1110	C1
1112	K30
1117	B30
2101	B3
2102	B4
2103	B2
2104	E8
2105	L10
2108	B11
2109	C10
2110	D12
2111	J27
2112	F28
2113	A15
2114	A20
2115	B22
2116	A22
2117	C25
2118	E25
2119	C26
2120	D26
2121	H13
2123	G15
2124	H14
2125	H15
2126	G16
2127	H18
2128	H19
2129	G19
2131	G17
2141	L6
2142	N9
2144	L7
2145	L8
2146	M8
2147	K12
2148	M12
2149	M12
2150	O18
2151	H28
2152	H28
2153	N19
2154	K13
2155	J12
2156	I10
2158	J11
2159	K11
2160	J10
2161	J6
2162	K7
2188	L22
2193	M5
2194	N5
2195	M6
2196	M8
2197	L8
2210	F28
2215	L22
2216	N20
2221	G15
2224	C29
2225	D29
3101	A2
3102	A3
3104	B4
3105	E8
3106	C7
3107	L11
3113	B11
3114	C11
3115	D11
3116	D11
3117	C11
3118	C11
3120	F29
3121	A16
3122	B18
3123	A21
3124	B22
3125	I23
3126	J19
3127	C26
3128	E26
3129	G17
3130	D25
3131	B23
3132	G19
3133	G15
3134	G13
3135	E12
3137	C25
3138	J6
3139	G24
3141	N4
3142	O5
3143	K6
3144	K6
3145	K6
3147	K7
3148	L7
3149	N7
3150	N7
3151	O7
3152	O8
3153	M3
3155	I10
3156	I10
3157	J11
3158	J11
3159	N13
3160	N13
3162	G29
3163	J27
3164	N12
3165	M19
3166	M19
3167	N19
3168	L19
3170	J27
3171	J27
3172	J28
3173	I29
3190	H29
3194	B20
3196	G20
3197	G29
3198	A21
3200	C9
3201	N6
3202	I9
3223	G16
3225	L19
3229	K22
3233	E7
3236	G15
3238	G20
3239	G14
3240	N4
5103	D8
5104	A16
5105	A18
5106	G18
5108	K8
5110	B15
5111	B19
5112	J13
5113	D12
5114	K8
5127	L5
6101	H29
6102	K6
6110	H24
6122	N12
7103	C13
7104	B20
7105	I14
7106	I28
7107	J28
7108	I11
7109	J11
7111	N4
7112	M8
7113	O7
7114	N4
7115	K5
7116	C11
7125	G24
7151	N6
9116	C10
9117	C8

TUNER 92 LAYOUT (For /22 only)

1101	A8
1110	B7
1112	F11
1117	F10
2101	A3
2102	B4
2103	B8
2104	B8
2105	A3
2108	B4
2109	D4
2110	D3
2111	B2
2112	C3
2113	C3
2114	E9
2115	E9
2116	E9
2117	C3
2118	C2
2119	D11
2120	D11
2121	C9
2123	D10
2124	D9
2125	C3
2126	D3
2127	C3
2128	D2
2129	D10
2131	D10
2141	E7
2142	D7
2144	E7
2145	D7
2146	D7
2147	C2
2148	B2
2149	B2
2150	C3
2151	B2
2152	B10
2153	B2
2154	B1
2155	B1
2156	B11
2158	D2
2159	D2
2160	D10
2161	E5
2162	D8
2188	C3
2193	E9
2194	E9
2195	E3
2196	D5
2197	D5
2210	B9
2215	F2
2216	B1
2221	E2
2224	F3
2225	F2
3101	B9
3102	B3
3104	B4
3105	B4
3106	B3
3107	A3
3113	B9
3114	E4
3115	D4
3116	D4
3117	E4
3118	D8
3120	F9
3121	C3
3122	D3
3123	E3
3124	E3
3125	C10
3126	C2
3127	D2
3128	D2
3129	C2
3130	D10
3131	E10
3132	D3
3133	E3
3134	E9
3135	C3
3137	D10
3138	E7
3139	C2
3141	F4
3142	F4
3143	E5
3144	E5
3145	E5
3147	D8
3148	D5
3149	E5
3150	F8
3151	D8
3152	B3
3153	F5
3155	C11
3156	C1
3157	D2
3158	C10
3159	A2
3160	A2
3162	C11
3163	A1
3164	C2
3165	B11
3166	B11
3167	B11
3168	C2
3170	A2
3171	A1
3172	A1
3173	A1
3190	C2
3194	E3
3196	C2
3197	C1
3198	C2
3200	D4
3201	E4
3202	E5
3223	C2
3225	B11
3229	F2
3233	B4
3236	E3
3238	E2
3239	D3
3240	F4
5103	C8
5104	B9
5105	D9
5106	E10
5108	C7
5110	C10
5111	D10
5112	B11
5113	D9
5114	E9
5127	F9
6101	C11
6102	E5
6110	D10
6122	A10
6123	A10
7103	C9
7104	E10
7105	B10
7106	A11
7107	B1
7108	C11
7109	C11
7111	F4
7112	D7
7113	E8
7114	F8
7115	E7
7116	D9
7125	C10
7151	E9
9101	D7
9107	F7
9108	E7
9111	B8
9113	D8
9114	F8
9115	E8
9116	D8
9117	C8
9119	E8
9120	B9
9122	C9
9123	F9
9124	D9
9125	B9
9128	C9
9130	B10
9132	C9
9133	B10
9134	C10
9136	C10
9138	B10
9141	E10
9142	E10
9144	F10
9146	D10
9147	F11
9149	F11
9150	E11
9156	B10
9157	F10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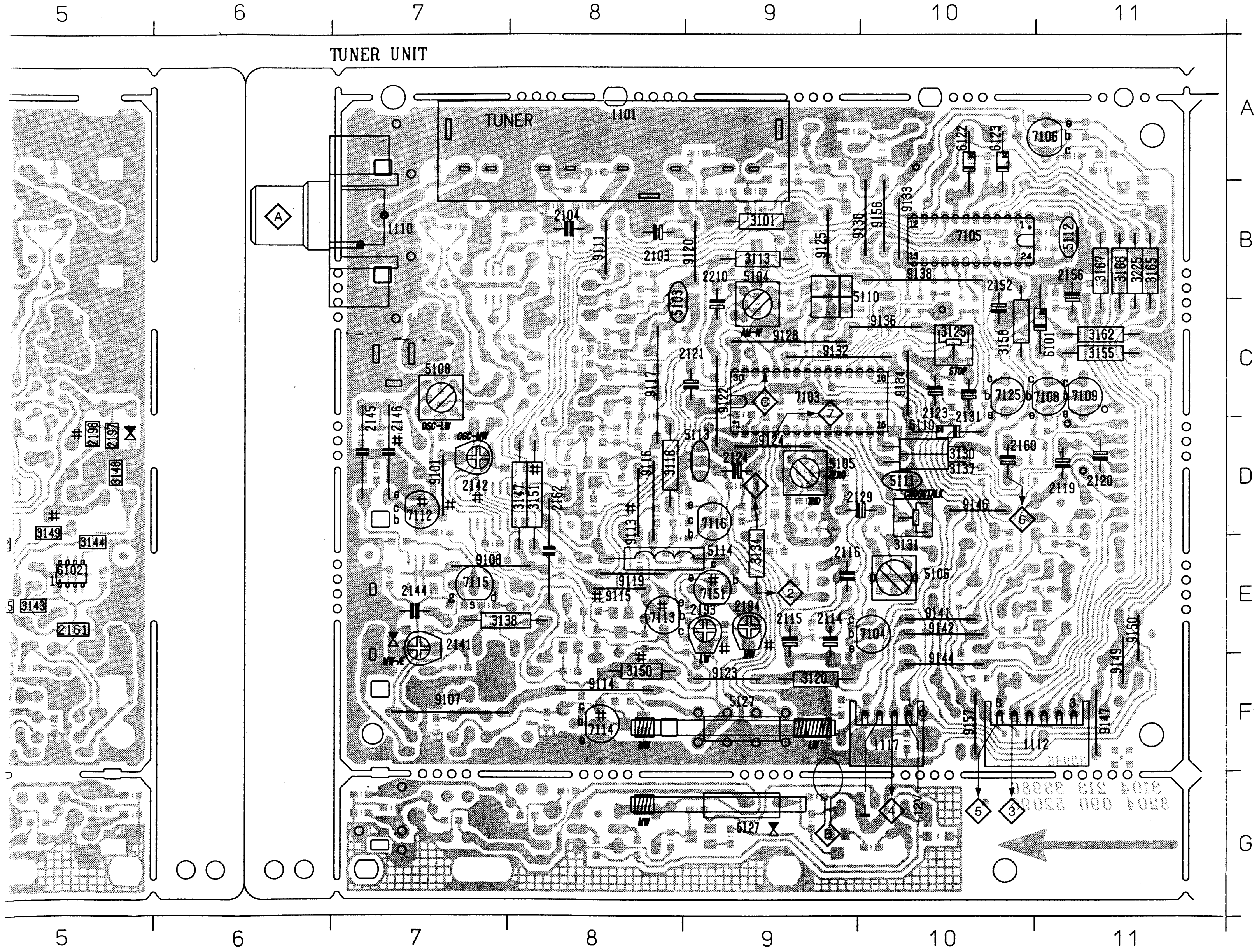
10
11
A
B
C
D
E
F
G
TUNER UNIT
TUNER
1101
1110
7107
3170
3163
3171
3172
2101
3102
3106
2102
3233
3104
3105
2108
2155
2154
2151
2216
2111
3164
2150
3121
3152
2110
2158
3128
2128
3122
3133
3236
3116
2109
3117
3114
3200
3202
3149
3144
6102
3145
3143
2161
3201
3225
2215
2225
2224
7111
3104 213 33986
8204 090 52096
2104
2103
3101
3113
5104
AM-IF
9128
5110
7105
2152
2156
3167
3166
3225
3165
3125
STOP
3162
3155
5108
OSC-LW
OSC-MW
7112
2142
3147
3151
2162
7103
5113
2124
5105
ZERO
5111
CROSSTALK
3131
9146
7125
7108
7109
2160
2119
2120
7116
5114
7151
9119
9115
7115
2144
3138
2141
AM-E
7113
2193
2194
2115
2114
7104
5106
9141
9142
9144
3150
9114
3120
9107
5127
7114
MW
LW
1117
1112
5127
12V

# NOT FOR JAPAN
⧗ ONLY FOR JAPAN

3104-217-03800 .6

# NOT FOR JAPAN
⧗ ONLY FOR JAPAN

D2	3171	A1	3225	B11	5110	C10	7104	E10	7125	C10	9120	B9	9141	E10
C10	3172	A1	3229	F2	5111	D10	7105	B10	7151	E9	9122	C9	9142	E10
A2	3173	A1	3233	B4	5112	B11	7106	A11	9101	D7	9123	F9	9144	F10
A2	3190	C2	3236	E3	5113	D9	7107	B1	9107	F7	9124	D9	9146	D10
C11	3194	E3	3238	E2	5114	E9	7108	C11	9108	E7	9125	B9	9147	F11
A1	3196	C2	3239	D3	5127	F9	7109	C11	9111	B8	9128	C9	9149	F11
C2	3197	C1	3240	F4	6101	C11	7111	F4	9113	D8	9130	B10	9150	E11
B11	3198	C2	5103	C8	6102	E5	7112	D7	9114	F8	9132	C9	9156	B10
B11	3200	D4	5104	B9	6110	D10	7113	E8	9115	E8	9133	B10	9157	F10
B11	3201	E4	5105	D9	6122	A10	7114	F8	9116	D8	9134	C10		
C2	3202	E5	5106	E10	6123	A10	7115	E7	9117	C8	9136	C10		
A2	3223	C2	5108	C7	7103	C9	7116	D9	9119	E8	9138	B10		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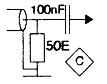
7
8
9
10
11
TUNER UNIT
TUNER
1101
A
B
C
D
E
F
G
1110
5108
5104
5105
5106
5110
5111
5112
5113
5114
5127
7103
7104
7105
7106
7108
7109
7112
7113
7114
7115
7116
7125
7151
3101
3113
3125
3131
3150
3120
3138
3147
3151
3155
3162
3158
2104
2103
2121
2142
2144
2152
2156
2160
2119
2120
2129
2116
2193
2194
2115
2114
1112
1117
6102
6101
3149
3144
3143
2161
2196
2197
3148

# NOT FOR JAPAN
⧗ ONLY FOR JAPAN

3104-217-03800 .6

TUNER Adjustment Table (FM,MW,LW with Ferroceptor)

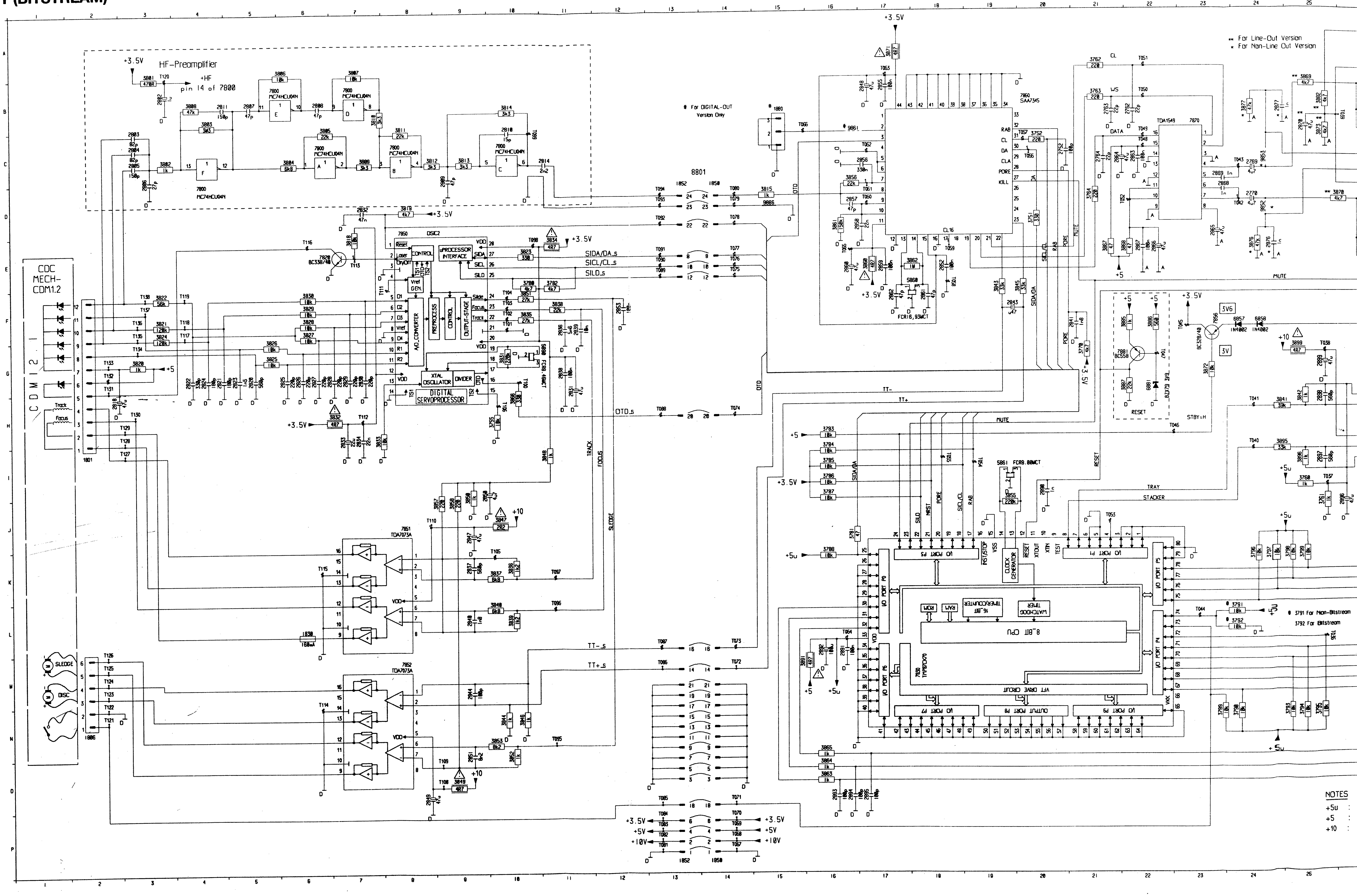
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50)			108 MHz	check	6	7.....9V
			87.5MHz	check		1.3.....2V
LW 153 - 279kHz (3)			279kHz	5108		8.5V ± 0.1V
			153kHz	check		0.7.... 1.5V
MW 522 - 1611kHz (9)			1611kHz	2142		8,5V ± 0.1V
			522kHz	check		0.7.....1.7V
FM IF						
FM	98 MHz 1mV mod = 1kHz Δf = 75kHz	A	98MHz	5105	1 2	0V ± 20mV
STEREO CROSSTALK						
FM	98 MHz 1mV 90% L + 9% pilot	A	98MHz	check	3	low < 1V
				3131	4	Right channel min.
SEARCH SENSITIVITY						
FM	98 MHz 12μV mod = 1kHz Δf = 75kHz	A	98MHz Sensitivity low "Level"	3125	5	Switches just from High to Low
AM - IF						
MW	1494kHz Δf = 10kHz low as posible swept signal		1494kHz	5104	7	symmetrical and max height
AM - RF						
LW	155kHz mod = 1kHz 30 % AM 270kHz	B *	155kHz	5127 LW	7	MAX ↕
			270kHz	2193		
MW	558kHz mod = 1kHz 30 % AM 1494kHz		558kHz	5127 MW		MAX ↕
			1494kHz	2194		

* Signal send via a frame antenna
(..) = tuning grid in kHz

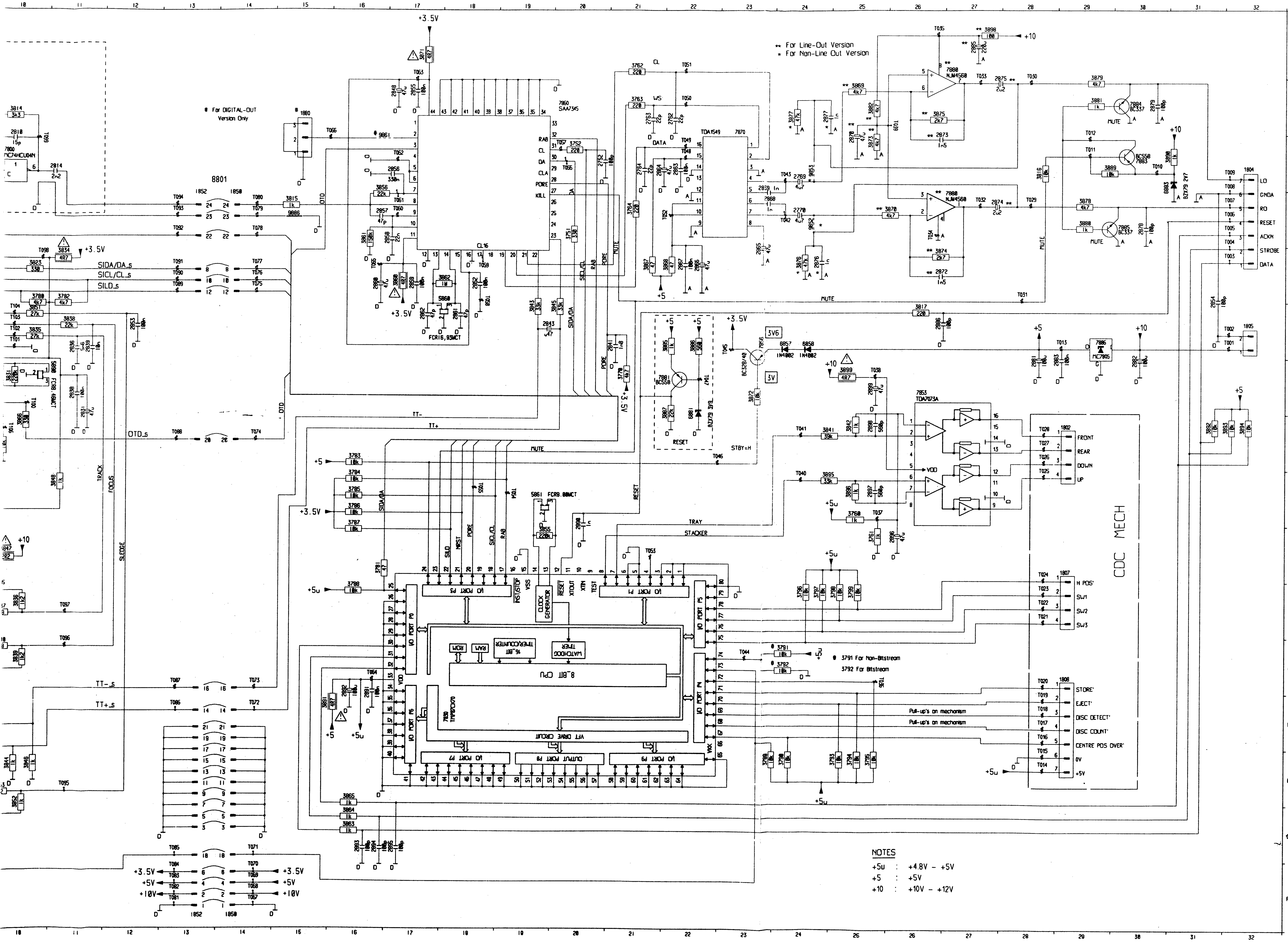
↕ repeat

LEU0049
9412

CD CIRCUIT (BITSTREAM)



HF-Preamplifier
+HF pin 14 of 7800
7800 MC74HCU04N
CDC MECH-CDM1.2
CDM12 I
Track
Focus
SLEDGE
DISC
1801
1806
7850 DSIC2
Reset
Laser
ON/OFF
CONTROL
µPROCESSOR INTERFACE
Vref GEN.
A/D CONVERTER
PREPROCESS
CONTROL
OUTPUT-STAGE
XTAL OSCILLATOR
DIVIDER
DIGITAL SERVOPROCESSOR
SIDA/DA_s
SICL/CL_s
SILD_s
OTD_s
7851 TDA7073A
7852 TDA7073A
TT-_s
TT+_s
TRACK
FOCUS
SLEDGE
8801
1852
1850
+3.5V
+5V
+10V
7860 SAA7345
FCR16.93MCT
* For DIGITAL-OUT Version Only
1880
TDA1549 7870
** For Line-Out Version
* For Non-Line Out Version
CL
WS
DATA
MUTE
RESET
STBY=H
BC328/40
3V6
3V
1N4002
BC558
BZX79 3V9
TRAY
STACKER
5861 FCR8.00MCT
7830 TMP87C
8_BIT CPU
ROM
RAM
16_BIT TIMER/COUNTER
WATCHDOG TIMER
CLOCK GENERATOR
I/O PORT P0
I/O PORT P1
I/O PORT P3
I/O PORT P4
I/O PORT P5
I/O PORT P6
I/O PORT P7
OUTPUT PORT P8
I/O PORT P9
VFT DRIVE CIRCUIT
RESET
XTOUT
XTIN
TEST
VSS
VDD
VKK
INST/STOP
SILD
NRST
PORE
SICL/CL
RAB
SIDA/DA
# 3791 For Non-Bitstream
3792 For Bitstream
NOTES
+5u :
+5 :
+10 :


+3.5V
3871 4R7
7860 SAA7345
CL16
# For DIGITAL-OUT Version Only
1880
8801
1852
1850
3815 1k
9886
OTD
3814 3k3
2810 15p
7800 MC74HCU04N
2814 2n2
3834 4R7
3823 330
SIDA/DA_s
SICL/CL_s
SILD_s
3780 4k7
3782 4k7
3851 27k
3838 22k
3835 27k
3856 22k
2856 330n
2857 47p
3861 150k
5860 FCR16,93MCT
3862 1M
RAB
CL
DA
CLA
PORE
KILL
3752 220
3762 220
3763 220
WS
DATA
TDA1549
7870
2839 1n
2860 1n
2769 4u7
2770 4u7
** For Line-Out Version
* For Non-Line Out Version
3869 4k7
3877 47k
3882 4k7
3873 4k7
3875 2k7
2873 1n5
7880 NJM4560
3898 100
+10
2875 2u2
3879 4k7
3881 1k
7884 BC337
MUTE
3889 10k
7883 BC558
6883 BZX79 2V7
3870 4k7
2874 2u2
3880 1k
7885 BC337
3874 2k7
2872 1n5
3816 10k
1804
LO
GNDA
RO
RESET
ACKN
STROBE
DATA
3817 220
2886 100n
2854 100n
1805
7886 MC7805
+5
+3.5V
3V6
6857 1N4002
6858 1N4002
7856 BC328/40
3V
3872 10k
3885 1k
3886 56k
7881 BC558
3887 22k
6881 BZX79 3V9
RESET
STBY=H
3899 4R7
7853 TDA7073A
3841 39k
3895 33k
3760 1k
1802
FRONT
REAR
DOWN
UP
CDC MECH
1807
H POS'
SW1
SW2
SW3
1808
STORE'
EJECT'
DISC DETECT'
DISC COUNT'
CENTRE POS OVER'
0V
+5V
Pull-up's on mechanism
3791 10k
3792 10k
3791 For Non-Bitstream
3792 For Bitstream
7830 TMP87CK70
8_BIT CPU
16_BIT TIMER/COUNTER
RAM
ROM
WATCHDOG TIMER
VFT DRIVE CIRCUIT
I/O PORT P0
I/O PORT P1
I/O PORT P3
I/O PORT P4
I/O PORT P5
I/O PORT P6
I/O PORT P7
OUTPUT PORT P8
I/O PORT P9
CLOCK GENERATOR
INST/STOP
VSS
RESET
XOUT
XIN
TEST
VDD
VKK
5861 FCR8.00MCT
3855 220k
3783 10k
3784 10k
3785 10k
3786 10k
3787 10k
3788 10k
3865 1k
3864 1k
3863 1k
TRAY
STACKER
MUTE
TT-
TT+
TT-_s
TT+_s
OTD_s
TRACK
FOCUS
SLEDGE
+5u
+3.5V
+5V
+10V

NOTES

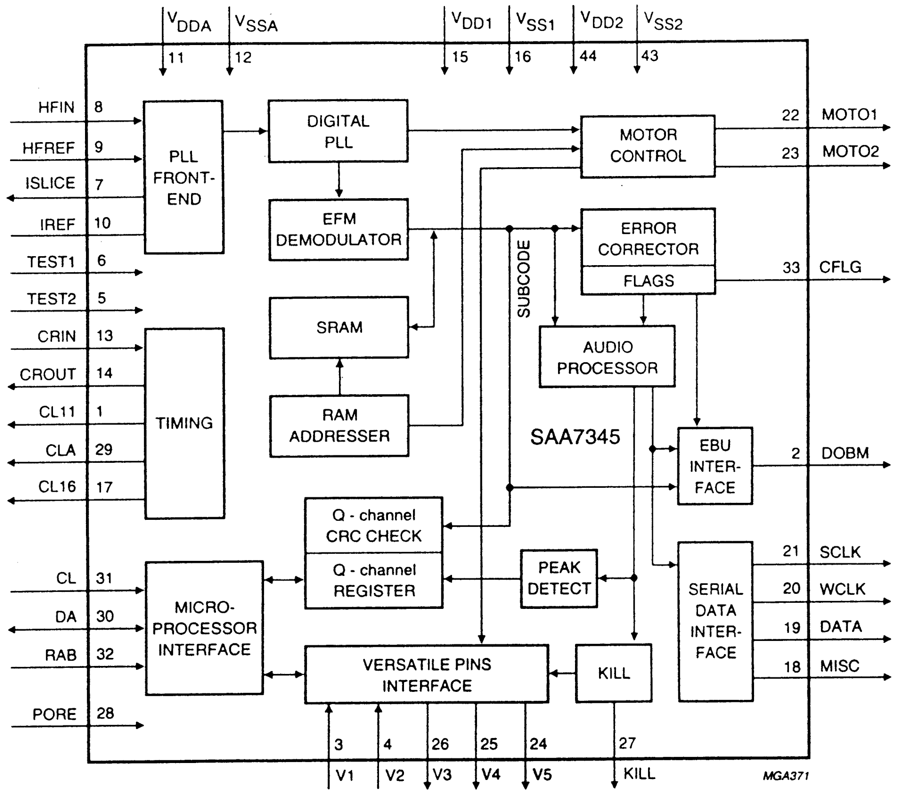
+5u : +4.8V - +5V

+5 : +5V

+10 : +10V - +12V

1801	I 2	3846	N10
1802	H29	3847	J10
1804	C32	3848	I11
1805	F32	3849	D 9
1806	N 2	3850	J 9
1807	J29	3851	F10
1808	L29	3852	N10
1830	L 6	3853	N10
1850	P14	3855	J19
1850	D14	3856	C16
1852	P13	3857	J 9
1852	D13	3858	J 9
1880	B15	3860	E17
2752	C20	3861	D16
2762	B22	3862	E18
2763	B21	3863	O16
2764	C21	3864	O16
2769	C24	3865	N16
2770	D24	3866	H10
2802	B 3	3867	E21
2803	C 3	3868	E22
2804	C 3	3869	B25
2805	C 3	3870	D26
2806	C 3	3871	A17
2807	B 5	3872	G23
2808	B 6	3873	C25
2809	C 9	3874	E26
2810	C10	3875	B26
2811	B 4	3876	E24
2814	C11	3877	B24
2818	H 2	3878	D29
2820	G 5	3879	A29
2821	G 4	3880	D29
2822	G 4	3881	B29
2823	G 5	3882	B25
2824	G 4	3885	F22
2825	G 6	3886	F22
2826	G 6	3887	G22
2827	G 6	3889	C29
2828	G 7	3890	C30
2829	G 7	3891	M15
2830	G 7	3892	H31
2831	G11	3893	H32
2832	D 7	3894	H32
2833	H 7	3895	I24
2834	H 7	3896	I25
2836	F11	3898	A27
2837	K 9	3899	G25
2838	G11	5860	E18
2839	F11	5861	I19
2840	L 9	5890	G11
2841	F21	6857	F24
2843	F19	6858	F24
2844	M 9	6881	G22
2847	J 9	6883	C30
2848	B17	7800	C 6
2849	D 8	7800	C 8
2850	I 9	7800	C10
2851	N 9	7800	B 7
2852	E18	7800	B 5
2853	F12	7800	D 4
2854	E31	7820	E 7
2855	B17	7830	M18
2856	C17	7850	D 8
2857	D16	7851	J 8
2858	D17	7852	M 8
2859	E17	7853	G26
2860	E16	7856	F23
2861	F18	7860	B20
2862	F17	7870	B23
2863	C22	7880	D27
2864	C21	7880	A27
2865	E23	7881	G22
2866	E22	7883	C30
2867	E22	7884	B30
2868	D23	7885	D30
2869	C23	7886	F29
2870	C25	9852	D24
2872	E26	9853	C24
2873	C26	9861	C16
2874	D27	9886	D15
2875	B27		
2876	E24		
2877	B24		
2878	D30		
2879	B30		
2881	G28		
2882	G30		
2883	G29		
2885	A27		
2886	F26		
2890	I20		
2891	L16		
2892	L16		
2893	O16		
2894	O16		
2895	O17		
2896	J26		
2897	I25		
2898	H25		
2899	G25		
3751	D20		
3752	C20		
3755	H18		
3760	I25		
3761	J25		
3762	A21		
3763	B21		
3764	D21		
3770	G21		
3780	E10		
3781	J16		
3782	E11		
3783	H16		
3784	I16		
3785	I16		
3786	I16		
3787	I16		
3788	K16		
3789	N23		
3790	N24		
3791	L24		
3792	L24		
3793	N25		
3794	N25		
3795	N25		
3796	K24		
3797	K24		
3798	K25		
3799	K25		
3801	A 3		
3802	C 3		
3803	B 4		
3804	C 6		
3805	B 6		
3806	A 6		
3807	A 7		
3808	B 4		
3809	C 7		
3810	B 7		
3811	B 8		
3812	C 8		
3813	C 9		
3814	B10		
3815	D15		
3816	C28		
3817	F26		
3818	E 7		
3819	D 8		
3820	G 3		
3821	F 3		
3822	F 3		
3823	E10		
3824	F 3		
3825	G 5		
3826	G 5		
3827	F 6		
3828	F 6		
3829	F 6		
3830	F 6		
3831	G10		
3832	H 7		
3833	H 7		
3834	E11		
3835	F10		
3836	K10		
3837	K10		
3838	F11		
3839	L10		
3840	L10		
3841	H24		
3842	H25		
3843	F19		
3844	N10		
3845	F20		

IC 7860 (SAA 7345)



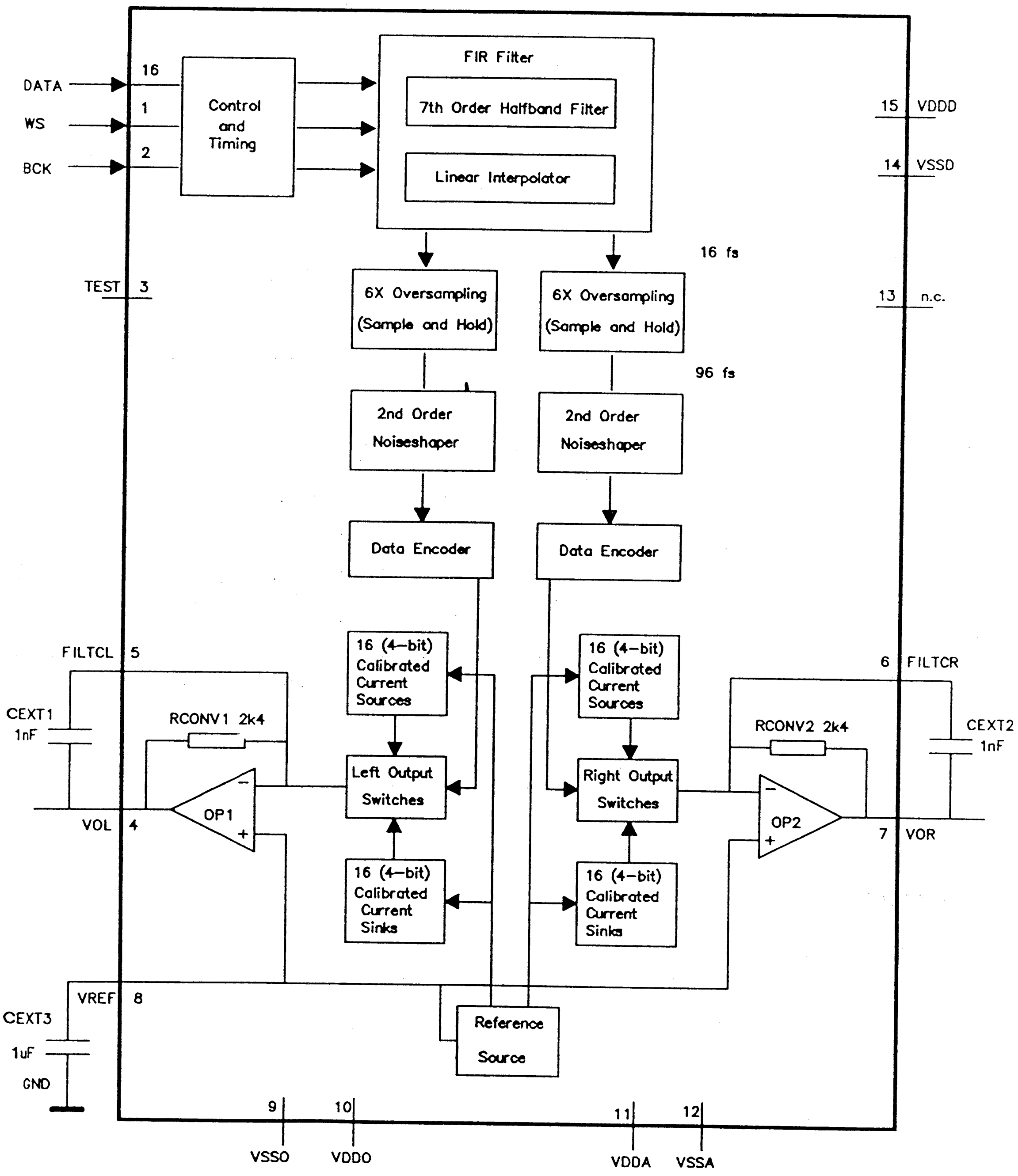
VDDA
VSSA
VDD1
VSS1
VDD2
VSS2
11
12
15
16
44
43
HFIN
8
HFREF
9
ISLICE
7
IREF
10
TEST1
6
TEST2
5
CRIN
13
CROUT
14
CL11
1
CLA
29
CL16
17
CL
31
DA
30
RAB
32
PORE
28
PLL FRONT-END
DIGITAL PLL
EFM DEMODULATOR
SRAM
RAM ADDRESSER
TIMING
MICRO-PROCESSOR INTERFACE
Q - channel CRC CHECK
Q - channel REGISTER
VERSATILE PINS INTERFACE
MOTOR CONTROL
ERROR CORRECTOR
FLAGS
SUBCODE
AUDIO PROCESSOR
SAA7345
EBU INTER-FACE
PEAK DETECT
SERIAL DATA INTER-FACE
KILL
22
MOTO1
23
MOTO2
33
CFLG
2
DOBM
21
SCLK
20
WCLK
19
DATA
18
MISC
3
V1
4
V2
26
V3
25
V4
24
V5
27
KILL
MGA371

Block diagram.

PINNING OF SAA7345

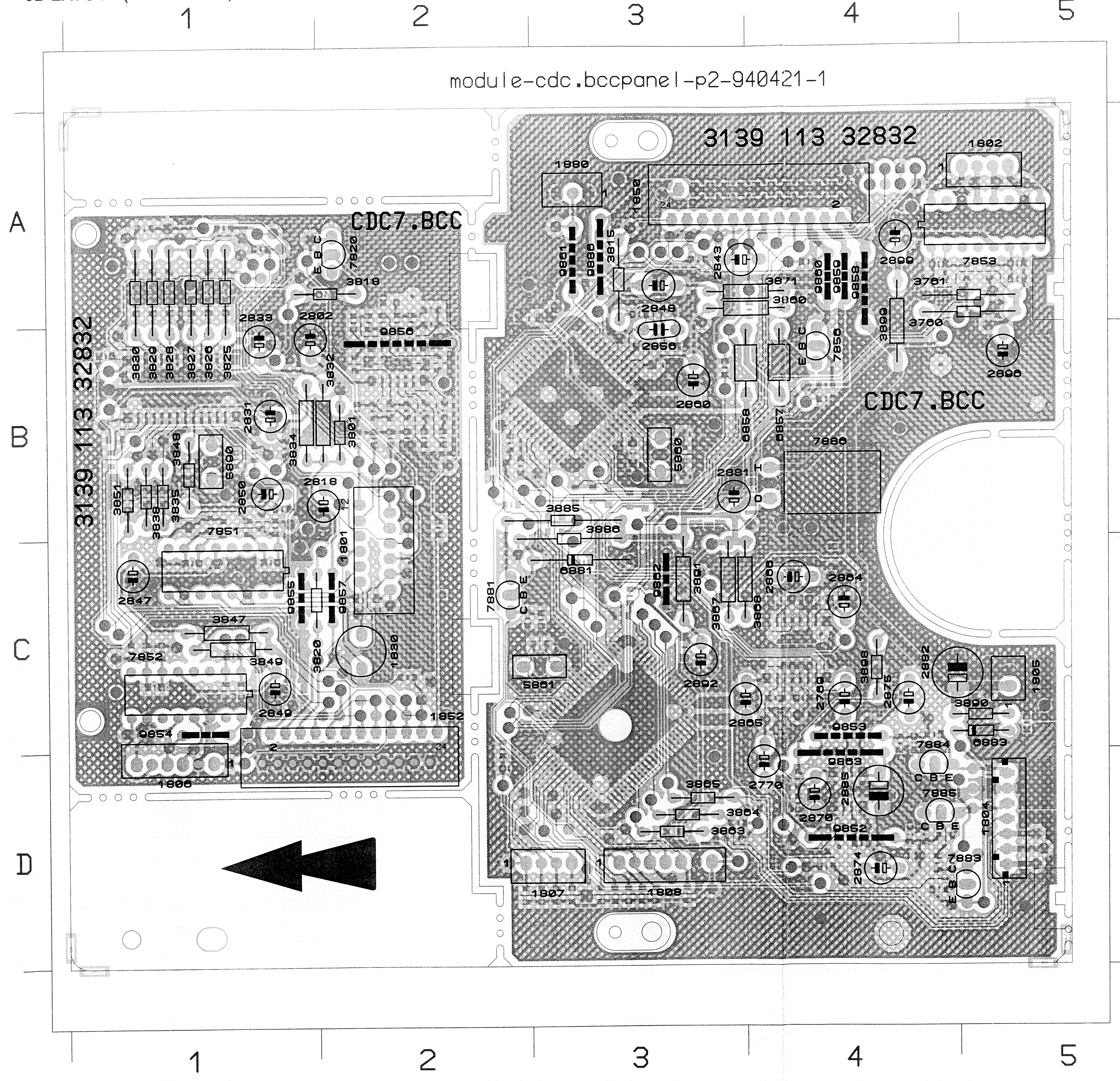
SYMBOL	PIN	DESCRIPTION
CL11	1	11.2896 MHz clock output (3-state)
DBOM	2	bi-phase mark output (externally buffered; 3-state)
V1	3	versatile input pin
V2	4	versatile input pin
TEST2	5	test input; this pin should be tied LOW
TEST1	6	test input; this pin should be tied LOW
ISLICE	7	current feedback from data slicer
HFIN	8	comparator signal input
HFREF	9	comparator common-mode input
IREF	10	reference current pin (nominally$V_{DD}/2$)
V_{DDA}	11	analog supply
V_{SSA}	12	analog supply
CRIN	13	crystal/resonator input
CROUT	14	crystal/resonator output
V_{DD1}	15	digital supply
V_{SS1}	16	digital supply
CL16	17	16.9344MHz system clock output
MISC	18	general purpose DAC output (3-state)
DATA	19	serial data output (3-state)
WCLK	20	word clock output (3-state)
SCLK	21	serial bit clock (3-state)
MOTO1	22	motor output 1; versatile (3-state)
MOTO2	23	motor output 2; versatile (3-state)
V5	24	versatile output pin
V4	25	versatile output pin
V3	26	versatile output pin (open-drain)
KILL	27	kill output; programmable (open-drain)
PORE	28	power-on reset enable input (active LOW)
CLA	29	4.2336MHz microprocessor clock output
RAB	32	interface $R/\overline{W}$ and acknowledge input
CFLG	33	correction flag output (open-drain)
	34-42	no internal connection
V_{SS2}	43	digital supply
V_{DD2}	44	digital supply

IC 7870 (TDA 1549)

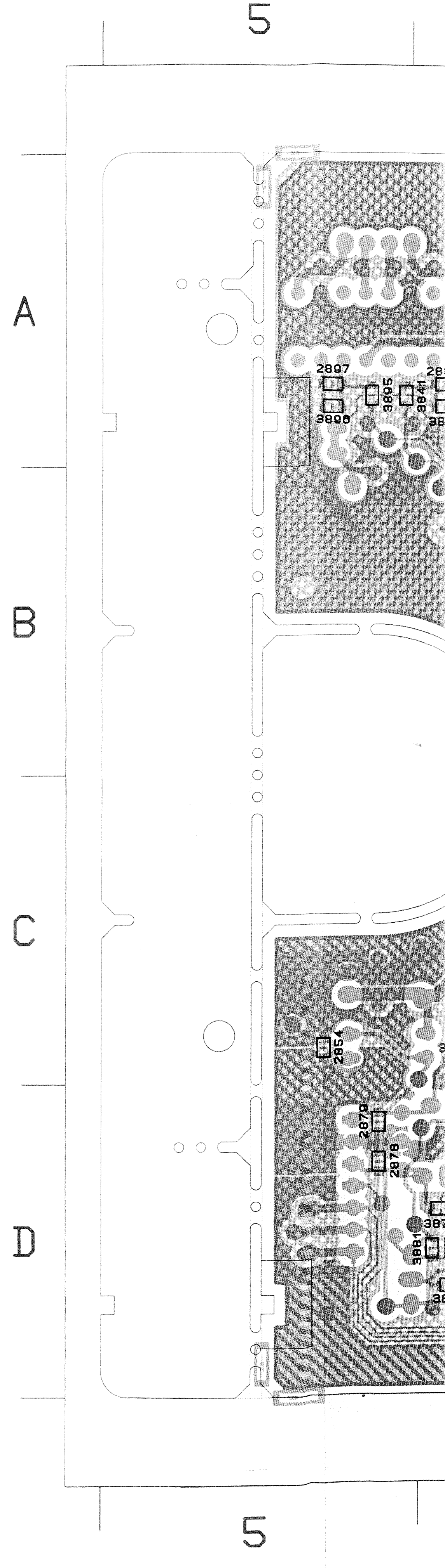

DATA
WS
BCK
16
1
2
Control and Timing
FIR Filter
7th Order Halfband Filter
Linear Interpolator
15 VDDD
14 VSSD
16 fs
TEST 3
6X Oversampling (Sample and Hold)
6X Oversampling (Sample and Hold)
13 n.c.
96 fs
2nd Order Noiseshaper
2nd Order Noiseshaper
Data Encoder
Data Encoder
FILTCL 5
16 (4–bit) Calibrated Current Sources
16 (4–bit) Calibrated Current Sources
6 FILTCR
CEXT1 1nF
RCONV1 2k4
RCONV2 2k4
CEXT2 1nF
Left Output Switches
Right Output Switches
OP1
OP2
VOL 4
7 VOR
16 (4–bit) Calibrated Current Sinks
16 (4–bit) Calibrated Current Sinks
VREF 8
CEXT3
1uF
GND
Reference Source
9 VSSO
10 VDDO
11 VDDA
12 VSSA

Block diagram

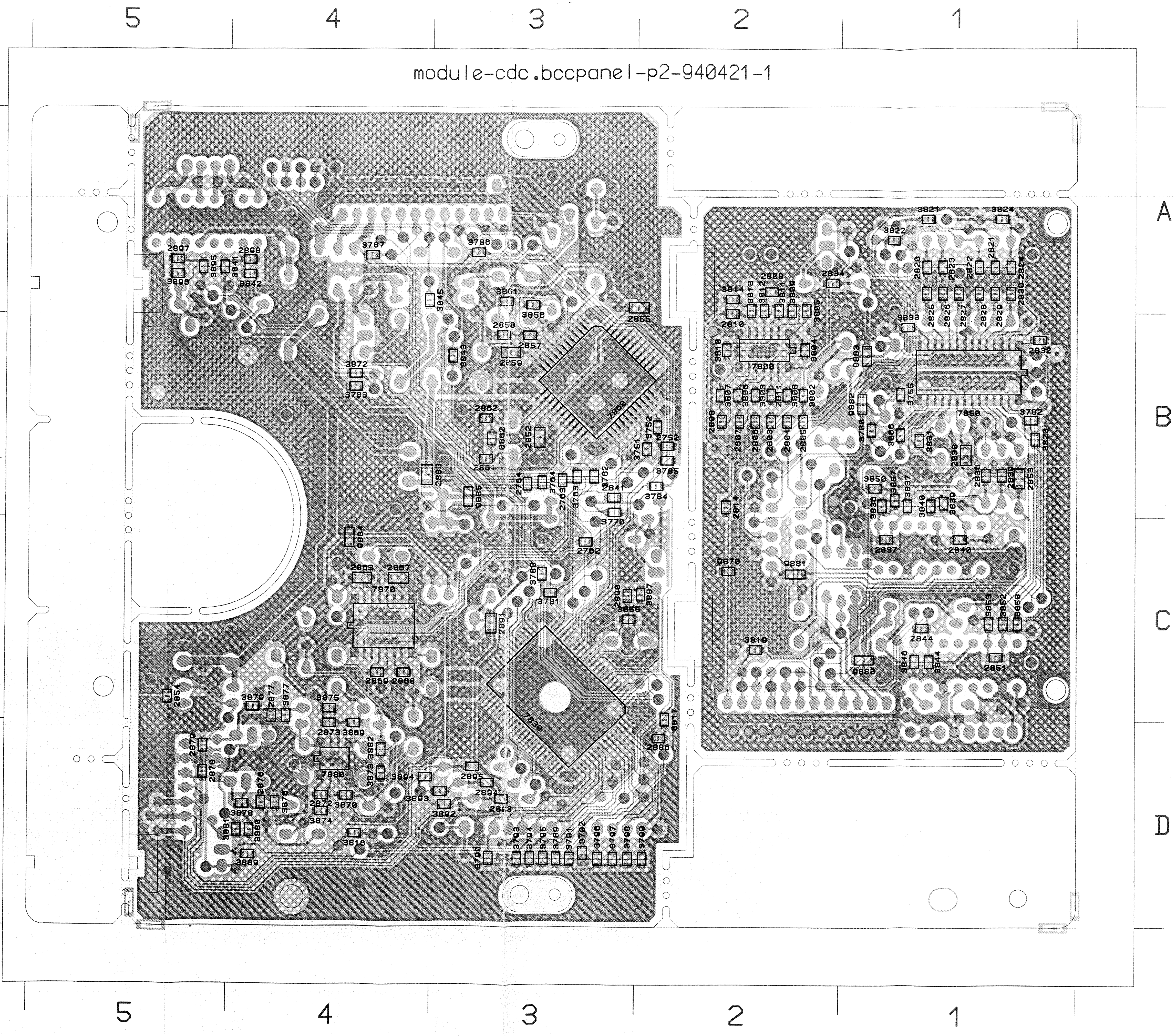
CD LAYOUT (BITSTREAM)


1
2
3
4
5
A
B
C
D
module-cdc.bccpanel-p2-940421-1
3139 113 32832
CDC7.BCC
3139 113 32832
CDC7.BCC
1880
1850
1802
7853
3761
3760
2899
2896
2843
3871
3860
2848
2856
2860
7856
9861
9860
9859
9858
3815
9886
3899
5860
6858
6857
7886
2881
3818
7820
2833
2802
9856
3830
3829
3828
3827
3826
3825
3832
2831
3834
3801
3848
5890
3851
3838
3835
2850
2818
1801
7851
2847
9855
3820
9857
1830
3847
3849
7852
2849
9854
1806
1852
7881
3885
3886
6881
9862
3891
3867
3868
2866
2864
5861
2892
2865
2769
2875
3898
2882
1805
3890
6883
9853
7884
9863
7885
2770
3865
3864
3863
2870
2885
9852
2874
7883
1804
1807
1808
E B C
C B E

1801	C	2
1802	A	5
1804	D	5
1805	C	5
1806	D	1
1807	D	3
1808	D	3
1830	C	2
1850	A	4
1852	C	2
1880	A	3
2769	C	4
2770	D	4
2802	B	1
2818	B	2
2831	B	1
2833	B	1
2843	A	3
2847	C	1
2848	A	3
2849	C	1
2850	B	1
2856	B	3
2860	B	3
2864	C	4
2865	C	3
2866	C	4
2870	D	4
2874	D	4
2875	C	4
2881	B	3
2882	C	4
2885	D	4
2892	C	3
2896	B	5
2899	A	4
3760	A	5
3761	A	5
3801	B	2
3815	A	3
3818	A	2
3820	C	1
3825	A	1
3826	A	1
3827	A	1
3828	A	1
3829	A	1
3830	A	1
3832	B	2
3834	B	1
3835	B	1
3838	B	1
3847	C	1
3848	B	1
3849	C	1
3851	B	1
3860	A	4
3863	D	3
3864	D	3
3865	D	3
3867	C	3
3868	C	3
3871	A	4
3885	B	3
3886	C	3
3890	C	5
3891	C	3
3898	C	4
3899	A	4
5860	B	3
5861	C	3
5890	B	1
6857	B	4
6858	B	3
6881	C	3
6883	C	5
7820	A	2
7851	C	1
7852	C	1
7853	A	5
7856	B	4
7881	C	2
7883	D	5
7884	D	4
7885	D	4
7886	B	4
9852	D	4
9853	C	4
9854	C	1
9855	C	1
9856	B	2
9857	C	2
9858	A	4
9859	A	4
9860	A	4
9861	A	3
9862	C	3
9863	D	4
9886	A	3

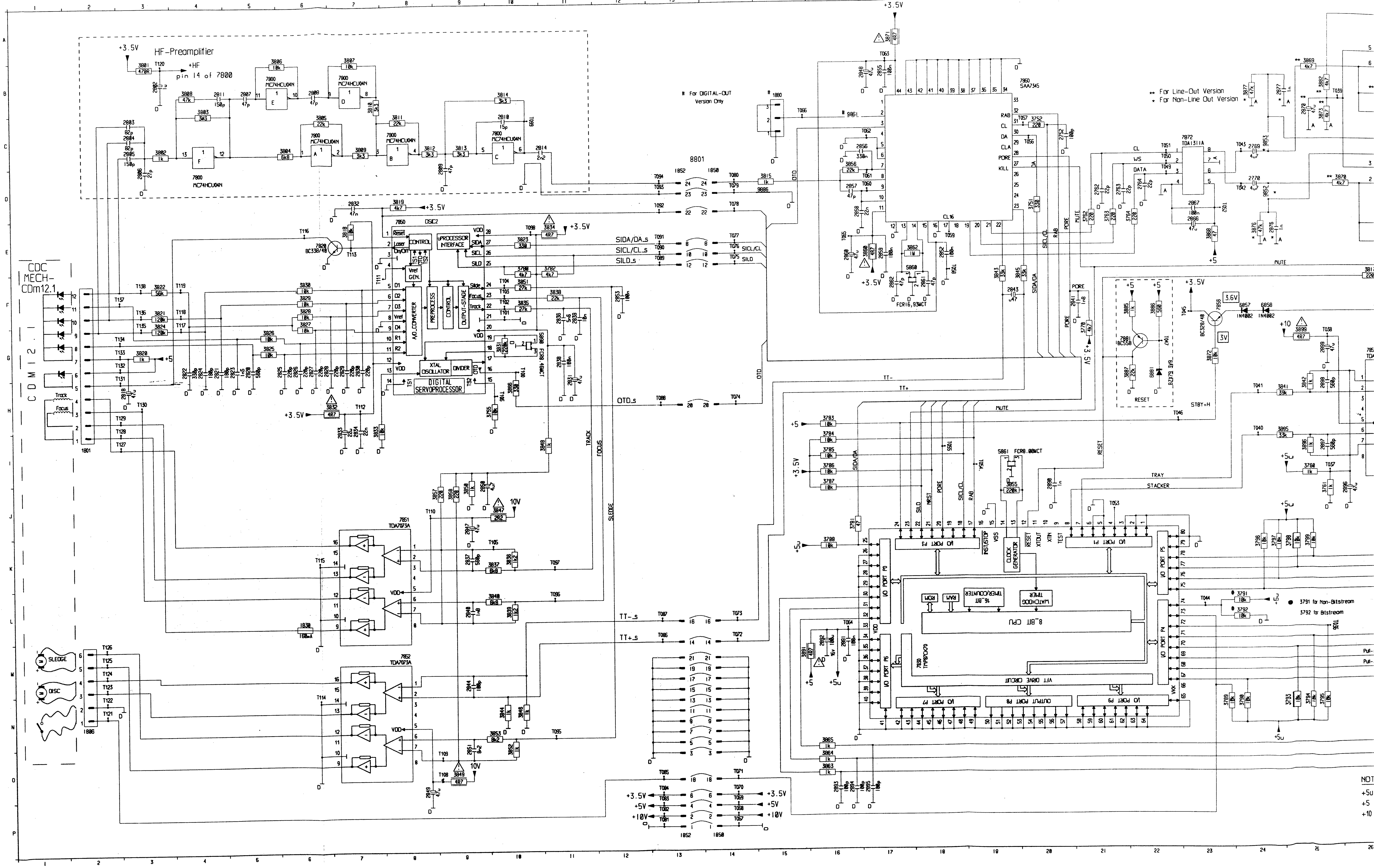

5
A
B
C
D
2897
3898
2854
2870
2878

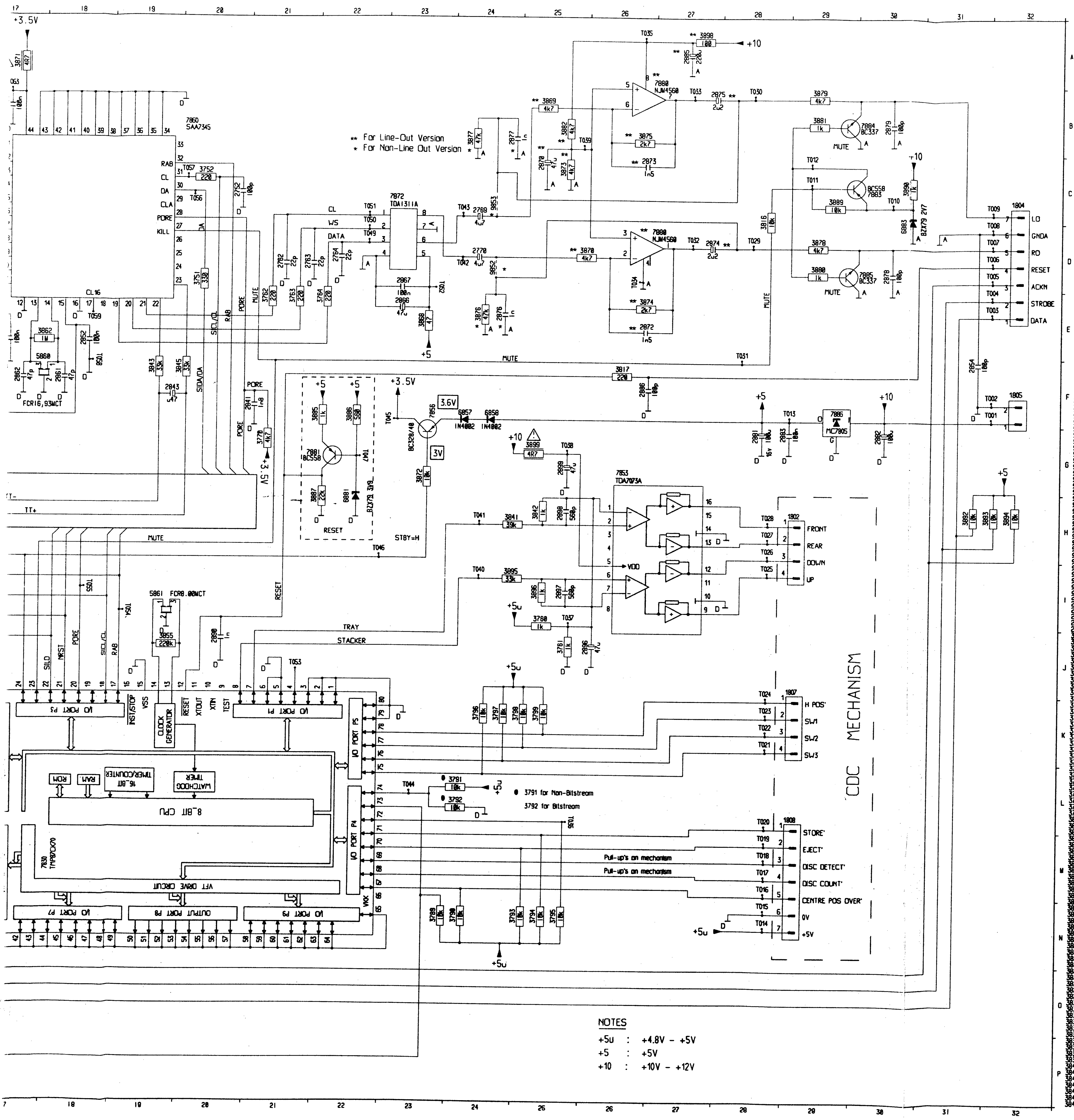
1801	C	2
1802	A	5
1804	D	5
1805	C	5
1806	D	1
1807	D	3
1808	D	3
1830	C	2
1850	A	4
1852	C	2
1880	A	3
2769	C	4
2770	D	4
2802	B	1
2818	B	2
2831	B	1
2833	B	1
2843	A	3
2847	C	1
2848	A	3
2849	C	1
2850	B	1
2856	B	3
2860	B	3
2864	C	4
2865	C	3
2866	C	4
2870	D	4
2874	D	4
2875	C	4
2881	B	3
2882	C	4
2885	D	4
2892	C	3
2896	B	5
2899	A	4
3760	A	5
3761	A	5
3801	B	2
3815	A	3
3818	A	2
3820	C	1
3825	A	1
3826	A	1
3827	A	1
3828	A	1
3829	A	1
3830	A	1
3832	B	2
3834	B	1
3835	B	1
3838	B	1
3847	C	1
3848	B	1
3849	C	1
3851	B	1
3860	A	4
3863	D	3
3864	D	3
3865	D	3
3867	C	3
3868	C	3
3871	A	4
3885	B	3
3886	C	3
3890	C	5
3891	C	3
3898	C	4
3899	A	4
5860	B	3
5861	C	3
5890	B	1
6857	B	4
6858	B	3
6881	C	3
6883	C	5
7820	A	2
7851	C	1
7852	C	1
7853	A	5
7856	B	4
7881	C	2
7883	D	5
7884	D	4
7885	D	4
7886	B	4
9852	D	4
9853	C	4
9854	C	1
9855	C	1
9856	B	2
9857	C	2
9858	A	4
9859	A	4
9860	A	4
9861	A	3
9862	C	3
9863	D	4
9886	A	3



2752	B2
2762	C3
2763	B3
2764	B3
2803	B2
2804	B2
2805	B2
2806	B2
2807	B2
2808	B2
2809	A2
2810	B2
2811	B2
2814	B2
2820	A1
2821	A1
2822	A1
2823	A1
2824	A1
2825	A1
2826	A1
2827	A1
2828	A1
2829	A1
2830	A1
2832	B1
2834	A2
2836	B1
2837	C1
2838	B1
2839	B1
2840	C1
2841	B3
2844	C1
2851	C1
2852	B3
2853	B1
2854	C5
2855	A2
2857	B3
2858	B3
2859	B3
2861	B3
2862	B3
2863	C4
2867	C4
2868	C4
2869	C4
2872	D4
2876	D4
2877	C4
2878	D5
2879	D5
2883	B4
2886	D2
2890	C3
2891	C3
2893	D3
2894	D3
2895	D3
2897	A5
2898	A4
3751	B2
3752	B2
3755	B1
3762	B3
3763	B3
3764	B3
3770	B3
3780	B1
3781	C3
3782	B1
3783	B4
3784	B2
3785	B2
3786	A3
3787	A4
3788	C3
3789	D3
3790	D3
3791	D3
3793	D3
3794	D3
3795	D3
3796	D3
3797	D3
3798	D3
3799	D2
3802	B2
3803	B2
3804	B2
3805	A2
3806	B2
3807	B2
3808	B2
3809	A2
3810	B2
3811	A2
3812	A2
3813	A2
3814	A2
3816	D4
3817	C2
3819	C2
3821	A1
3822	A1
3823	B1
3824	A1
3831	B1
3833	B1
3836	B1
3837	B1
3839	B1
3840	B1
3841	A5
3842	A4
3843	B3
3844	C1
3845	A4
3846	C1
3850	B1
3852	C1
3853	C1
3855	C3
3856	A3
3857	B1
3858	C1
3861	A3
3862	B3
3866	B1
3872	B4
3876	D4
3877	C4
3878	D4
3879	C4
3880	D4
3881	D4
3887	C2
3889	D4
3892	D3
3893	D3
3894	D4
3895	A5
3896	A5
7830	C3
7850	B1
7860	B3
7870	C4
7880	D4
9870	C2
9880	C1
9881	C2
9882	B1
9883	B1
9884	C4
9885	B3

CD CIRCUIT (NON-BITSTREAM)


HF-Preamplifier
+HF pin 14 of 7800
7800 MC74HCU04N
CDC MECH- CDm12.1
CDM 12.1
Track
Focus
7850 DSIC2
DIGITAL SERVOPROCESSOR
uPROCESSOR INTERFACE
A/D_CONVERTER
PREPROCESS
CONTROL
OUTPUT-STAGE
XTAL OSCILLATOR
DIVIDER
Vref GEN.
7820 BC338/40
7851 TDA7073A
7852 TDA7073A
SLEDGE
DISC
SIDA/DA_s
SICL/CL_s
SILD_s
OTD_s
TT-_s
TT+_s
8801
1852
1850
# For DIGITAL-OUT Version Only
7860 SAA7345
FCR16,93MCT
CL16
7872 TDA1311A
** For Line-Out Version
* For Non-Line Out Version
MUTE
RESET
STBY=H
BC328/40
3V
3.6V
7830 TMP47C/C0
8_BIT CPU
16_BIT TIMER/COUNTER
ROM
RAM
WATCHDOG TIMER
VFT DRIVE CIRCUIT
I/O PORT P0
I/O PORT P1
I/O PORT P3
I/O PORT P4
I/O PORT P5
I/O PORT P6
I/O PORT P7
OUTPUT PORT P8
I/O PORT P9
CLOCK GENERATOR
5861 FCR8.00MCT
TRAY
STACKER
3791 for Non-Bitstream
3792 for Bitstream
+3.5V
+5V
+10V
+5u
NOT

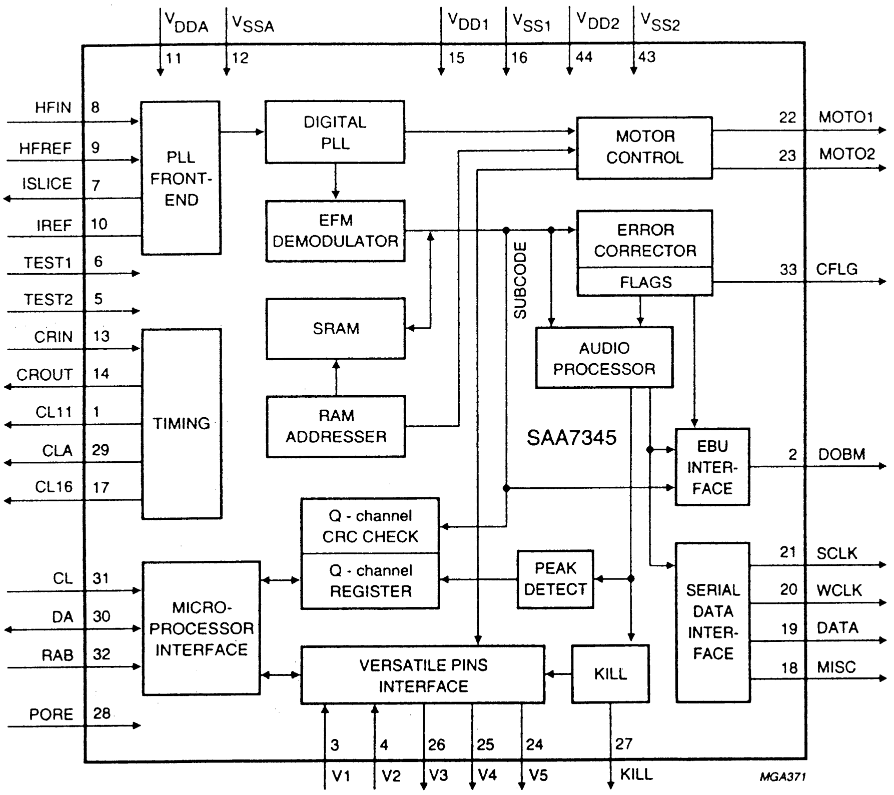

+3.5V
7860 SAA7345
RAB
CL
DA
CLA
PORE
KILL
CL16
5860 FCR16,93MCT
** For Line-Out Version
* For Non-Line Out Version
7872 TDA1311A
CL
WS
DATA
7880 NJM4560
7884 BC337
7883 BC558
7885 BC337
BZX79 2V7
MUTE
+10
+5
1804
LO
GNDA
RO
RESET
ACKN
STROBE
DATA
1805
7886 MC7805
7856 BC328/40
1N4002
3.6V
3V
+3.5V
7881 BC558
BZX79 3V9
RESET
STBY=H
7853 TDA7073A
VDD
1802
FRONT
REAR
DOWN
UP
CDC MECHANISM
TRAY
STACKER
5861 FCR8.00MCT
1807
H POS'
SW1
SW2
SW3
INST/STOP
CLOCK GENERATOR
RESET
XTOUT
XTIN
TEST
I/O PORT P3
I/O PORT P1
I/O PORT P5
I/O PORT P4
ROM
RAM
16_BIT TIMER/COUNTER
TIMER WATCHDOG
8_BIT CPU
VFT DRIVE CIRCUIT
I/O PORT P7
OUTPUT PORT P8
I/O PORT P9
7830 TMP87CK70
● 3791 for Non-Bitstream
3792 for Bitstream
Pull-up's on mechanism
1808
STORE'
EJECT'
DISC DETECT'
DISC COUNT'
CENTRE POS OVER'
0V
+5V
+5u

NOTES

+5u : +4.8V - +5V
+5 : +5V
+10 : +10V - +12V

1801	I 2
1802	H29
1804	C32
1805	F32
1806	N 2
1807	J29
1808	L29
1830	L 6
1850	P14
1850	D14
1852	P13
1852	D13
1880	B15
2752	C20
2762	D21
2763	D21
2764	D22
2769	C24
2770	D24
2802	B 3
2803	C 3
2804	C 3
2805	C 3
2806	D 3
2807	B 5
2808	B 6
2809	D 9
2810	C10
2811	B 4
2814	C11
2818	H 3
2820	G 5
2821	G 4
2822	G 4
2823	G 5
2824	G 4
2825	G 6
2826	G 6
2827	G 6
2828	G 6
2829	G 7
2830	G 7
2831	H11
2832	D 7
2833	I 7
2834	I 7
2836	F11
2837	K 9
2838	G11
2839	F11
2840	L 9
2841	F21
2843	F19
2844	M 9
2847	J 9
2848	B17
2849	D 8
2850	J 9
2851	D 9
2852	E18
2853	F12
2854	F31
2855	B17
2856	C17
2857	D16
2858	D16
2859	E17
2860	E16
2861	F18
2862	F17
2866	E23
2867	D23
2870	C25
2872	E26
2873	C26
2874	D27
2875	B27
2876	E24
2877	B24
2878	D30
2879	B30
2881	G28
2882	G30
2883	G28
2885	A27
2886	F26
2890	J20
2891	M16
2892	M16
2893	O16
2894	O16
2895	O17
2896	J26
2897	I25
2898	H25
2899	G25
3751	D20
3752	C20
3755	H10
3760	I25
3761	J25
3762	E21
3763	E21
3764	E22
3770	G21
3780	E10
3781	J16
3782	E11
3783	H16
3784	I16
3785	I16
3786	I16
3787	J16
3788	K16
3789	N23
3790	N24
3791	L24
3792	L24
3793	N25
3794	N25
3795	N25
3796	K24
3797	K24
3798	K25
3799	K25
3801	B 3
3802	C 3
3803	B 4
3804	C 6
3805	C 6
3806	A 6
3807	A 7
3808	B 4
3809	C 7
3810	B 7
3811	C 8
3812	C 8
3813	C 9
3814	B10
3815	D15
3816	C28
3817	F26
3818	E 7
3819	D 8
3820	G 3
3821	F 3
3822	F 3
3823	E10
3824	F 3
3825	G 5
3826	G 5
3827	F 6
3828	F 6
3829	F 6
3830	F 6
3831	G10
3832	H 7
3833	I 7
3834	E11
3835	F10
3836	K10
3837	K10
3838	F11
3839	L10
3840	L10
3841	H24
3842	H25
3843	F19
3844	N10
3845	F19
3846	N10
3847	J10
3848	I11
3849	O 9
3850	J 9
3851	F10
3852	O10
3853	N10
3855	J19
3856	D16
3857	J 8
3858	J 9
3860	E17
3862	E17
3863	O16
3864	O16
3865	N16
3866	H10
3868	E23
3869	B25
3870	D25
3871	A17
3872	G23
3873	C25
3874	E26
3875	B26
3876	E24
3877	B24
3878	D29
3879	B29
3880	D29
3881	B29
3882	B25
3885	F21
3886	F22
3887	H21
3889	C29
3890	C30
3891	M15
3892	H31
3893	H31
3894	H32
3895	I24
3896	I25
3898	A27
3899	G25
5860	F17
5861	I19
5890	G10
6857	F24
6858	F24
6881	H22
6883	D30
7800	C 6
7800	C 8
7800	C10
7800	B 7
7800	B 5
7800	D 4
7820	E 6
7830	M18
7850	E 8
7851	J 8
7852	M 8
7853	G26
7856	F23
7860	B20
7872	C23
7880	D26
7880	A26
7881	G22
7883	C30
7884	B30
7885	D30
7886	F29
9852	D24
9853	C24
9861	C16
9886	D15

IC 7860 (SAA 7345)

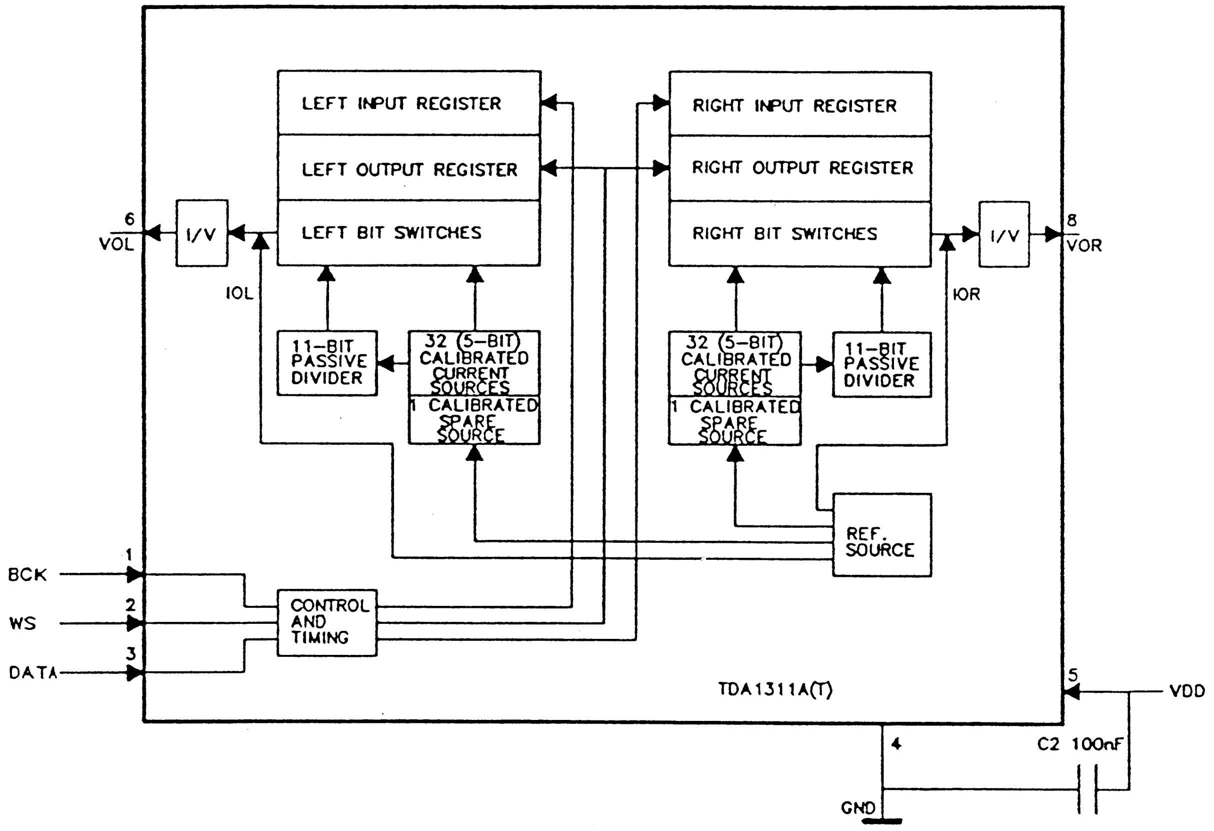

V_DDA
V_SSA
V_DD1
V_SS1
V_DD2
V_SS2
11
12
15
16
44
43
HFIN 8
HFREF 9
ISLICE 7
IREF 10
TEST1 6
TEST2 5
CRIN 13
CROUT 14
CL11 1
CLA 29
CL16 17
CL 31
DA 30
RAB 32
PORE 28
PLL FRONT-END
DIGITAL PLL
EFM DEMODULATOR
SRAM
RAM ADDRESSER
TIMING
MICRO-PROCESSOR INTERFACE
Q - channel CRC CHECK
Q - channel REGISTER
VERSATILE PINS INTERFACE
MOTOR CONTROL
ERROR CORRECTOR
FLAGS
SUBCODE
AUDIO PROCESSOR
SAA7345
EBU INTER-FACE
PEAK DETECT
KILL
SERIAL DATA INTER-FACE
22 MOTO1
23 MOTO2
33 CFLG
2 DOBM
21 SCLK
20 WCLK
19 DATA
18 MISC
3 V1
4 V2
26 V3
25 V4
24 V5
27 KILL
MGA371

Block diagram.

PINNING OF SAA7345

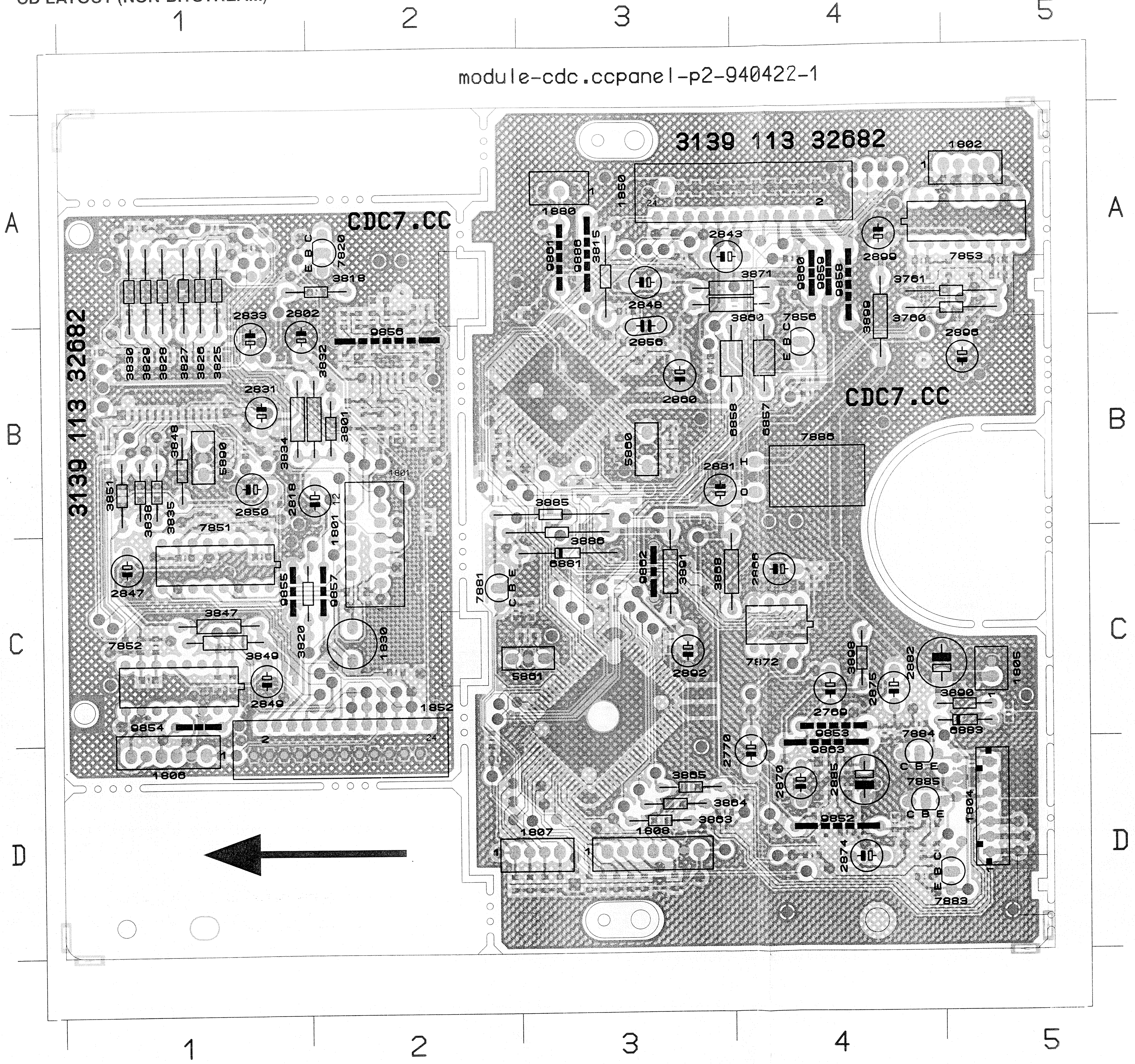
SYMBOL	PIN	DESCRIPTION
CL11	1	11.2896 MHz clock output (3-state)
DBOM	2	bi-phase mark output (externally buffered; 3-state)
V1	3	versatile input pin
V2	4	versatile input pin
TEST2	5	test input; this pin should be tied LOW
TEST1	6	test input; this pin should be tied LOW
ISLICE	7	current feedback from data slicer
HFIN	8	comparator signal input
HFREF	9	comparator common-mode input
IREF	10	reference current pin (nominallyV_{DD}/2)
V_{DDA}	11	analog supply
V_{SSA}	12	analog supply
CRIN	13	crystal/resonator input
CROUT	14	crystal/resonator output
V_{DD1}	15	digital supply
V_{SS1}	16	digital supply
CL16	17	16.9344MHz system clock output
MISC	18	general purpose DAC output (3-state)
DATA	19	serial data output (3-state)
WCLK	20	word clock output (3-state)
SCLK	21	serial bit clock (3-state)
MOTO1	22	motor output 1; versatile (3-state)
MOTO2	23	motor output 2; versatile (3-state)
V5	24	versatile output pin
V4	25	versatile output pin
V3	26	versatile output pin (open-drain)
KILL	27	kill output; programmable (open-drain)
PORE	28	power-on reset enable input (active LOW)
CLA	29	4.2336MHz microprocessor clock output
RAB	32	interface $R/\overline{W}$ and acknowledge input
CFLG	33	correction flag output (open-drain)
	34-42	no internal connection
V_{SS2}	43	digital supply
V_{DD2}	44	digital supply

IC 7872 (TDA 1311A)

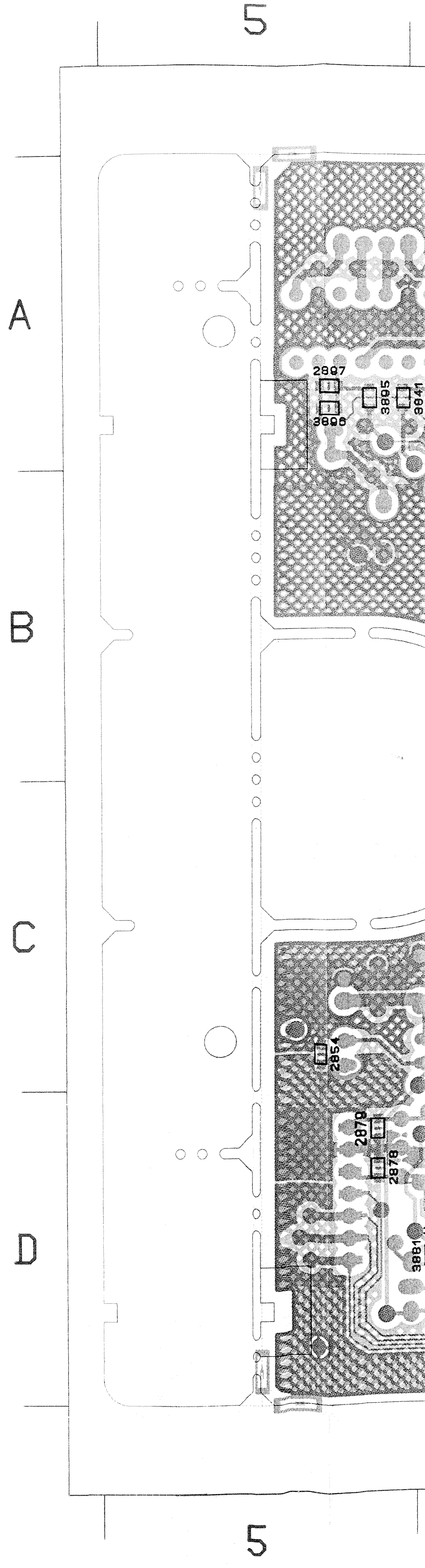

LEFT INPUT REGISTER
LEFT OUTPUT REGISTER
LEFT BIT SWITCHES
RIGHT INPUT REGISTER
RIGHT OUTPUT REGISTER
RIGHT BIT SWITCHES
6
VOL
I/V
IOL
8
VOR
IOR
11-BIT PASSIVE DIVIDER
32 (5-BIT) CALIBRATED CURRENT SOURCES
1 CALIBRATED SPARE SOURCE
REF. SOURCE
1
BCK
2
WS
3
DATA
CONTROL AND TIMING
TDA1311A(T)
5
VDD
4
C2 100nF
GND

Block diagram

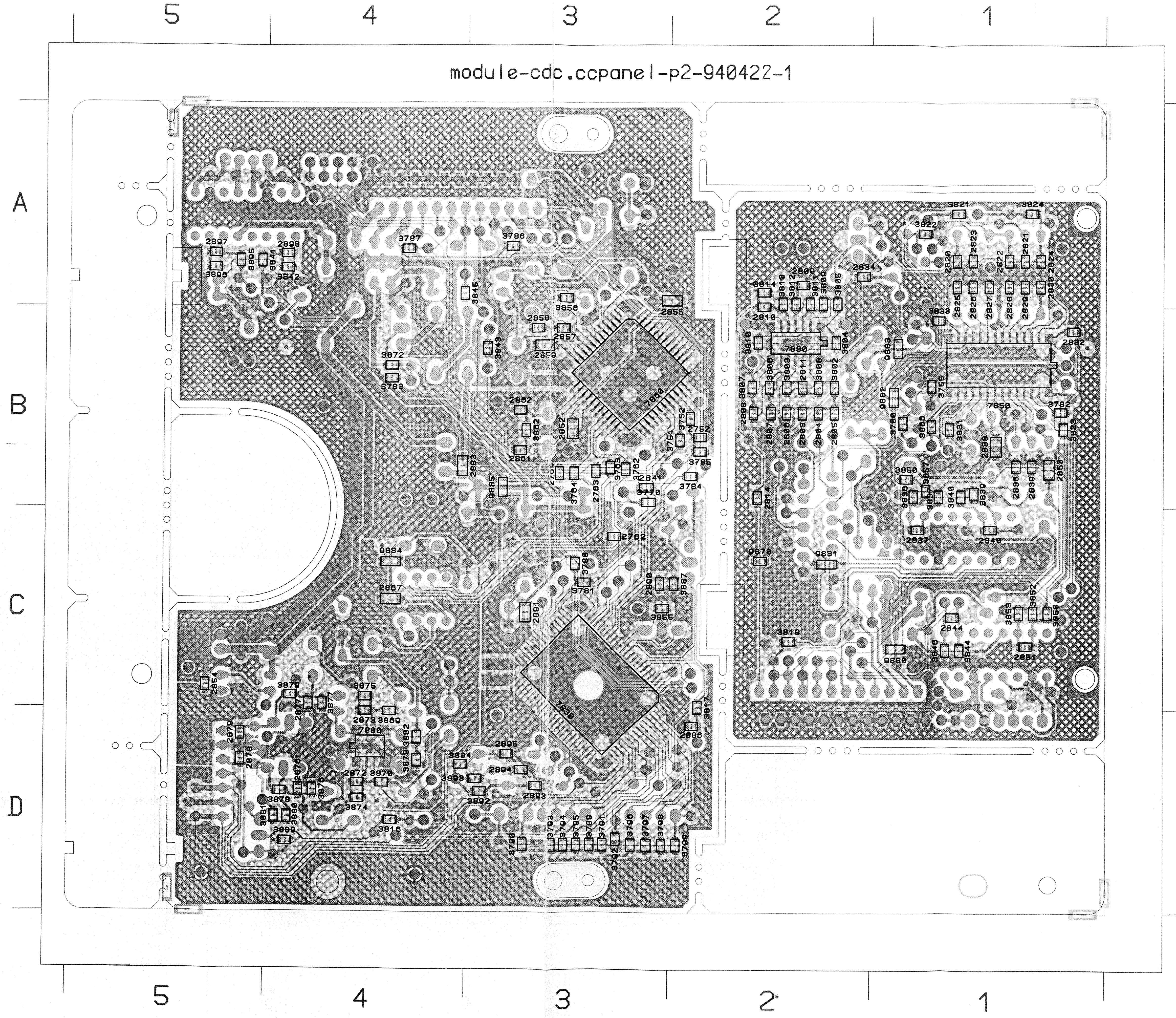
CD LAYOUT (NON-BITSTREAM)


1
2
3
4
5
A
B
C
D
module-cdc.ccpanel-p2-940422-1
3139 113 32682
CDC7.CC
3139 113 32682
CDC7.CC
1802
1880
1850
2843
3871
2899
7853
3761
3760
2896
2848
2856
3860
7856
2860
9856
2833
2802
3832
3830
3829
3828
3827
3826
3825
2831
3834
3801
3818
7820
3848
5890
3851
3838
3835
2850
2818
1801
7851
2847
9855
9857
3820
1830
3847
3849
7852
2849
1852
9854
1806
9861
9886
3815
9860
9859
9858
3899
6858
6857
5860
7886
2881
3885
3886
6881
7881
9862
3891
3868
2866
5861
2892
7872
3898
2875
2882
3890
1805
6883
2769
9853
9863
2770
7884
7885
2870
2885
1804
3865
3864
3863
9852
2874
7883
1807
1808

1801	C	2
1802	A	5
1804	D	5
1805	C	5
1806	D	1
1807	D	3
1808	D	3
1830	C	2
1850	A	4
1852	C	2
1880	A	3
2769	C	4
2770	D	4
2802	B	1
2818	B	2
2831	B	1
2833	B	1
2843	A	3
2847	C	1
2848	A	3
2849	C	1
2850	B	1
2856	B	3
2860	B	3
2866	C	4
2870	D	4
2874	D	4
2875	C	4
2881	B	3
2882	C	4
2885	D	4
2892	C	3
2896	B	5
2899	A	4
3760	A	5
3761	A	5
3801	B	2
3815	A	3
3818	A	2
3820	C	1
3825	A	1
3826	A	1
3827	A	1
3828	A	1
3829	A	1
3830	A	1
3832	B	2
3834	B	1
3835	B	1
3838	B	1
3847	C	1
3848	B	1
3849	C	1
3851	B	1
3860	A	4
3863	D	3
3864	D	3
3865	D	3
3868	C	3
3871	A	4
3885	B	3
3886	C	3
3890	C	5
3891	C	3
3898	C	4
3899	A	4
5860	B	3
5861	C	3
5890	B	1
6857	B	4
6858	B	3
6881	C	3
6883	C	5
7820	A	2
7851	C	1
7852	C	1
7853	A	5
7856	B	4
7872	C	4
7881	C	2
7883	D	5
7884	D	4
7885	D	4
7886	B	4
9852	D	4
9853	C	4
9854	C	1
9855	C	1
9856	B	2
9857	C	2
9858	A	4
9859	A	4
9860	A	4
9861	A	3
9862	C	3
9863	D	4
9886	A	3


5
A
B
C
D
2897
3895
3895
2854
2870
2878

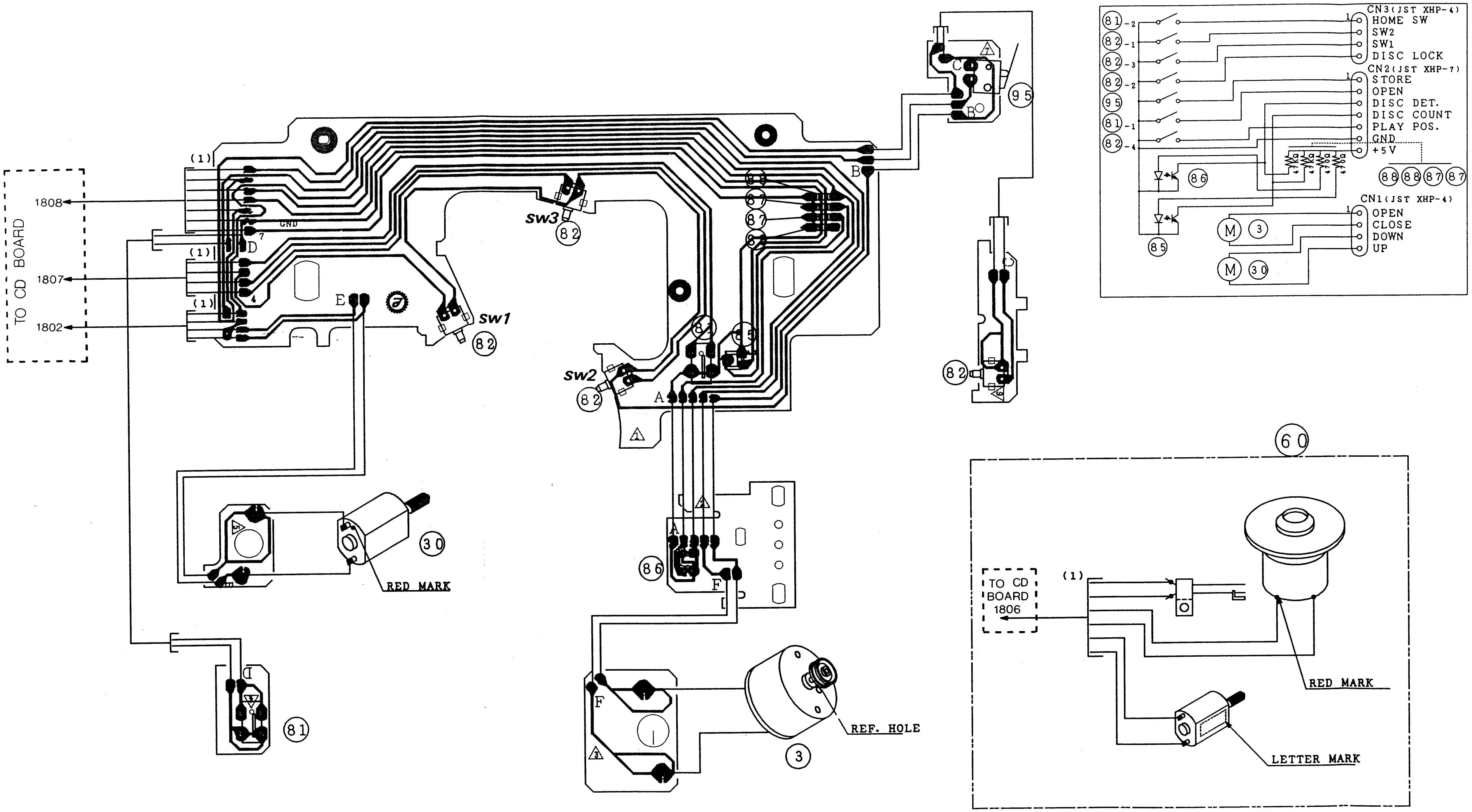
1801	C	2	3868	C	3
1802	A	5	3871	A	4
1804	D	5	3885	B	3
1805	C	5	3886	C	3
1806	D	1	3890	C	5
1807	D	3	3891	C	3
1808	D	3	3898	C	4
1830	C	2	3899	A	4
1850	A	4	5860	B	3
1852	C	2	5861	C	3
1880	A	3	5890	B	1
2769	C	4	6857	B	4
2770	D	4	6858	B	3
2802	B	1	6881	C	3
2818	B	2	6883	C	5
2831	B	1	7820	A	2
2833	B	1	7851	C	1
2843	A	3	7852	C	1
2847	C	1	7853	A	5
2848	A	3	7856	B	4
2849	C	1	7872	C	4
2850	B	1	7881	C	2
2856	B	3	7883	D	5
2860	B	3	7884	D	4
2866	C	4	7885	D	4
2870	D	4	7886	B	4
2874	D	4	9852	D	4
2875	C	4	9853	C	4
2881	B	3	9854	C	1
2882	C	4	9855	C	1
2885	D	4	9856	B	2
2892	C	3	9857	C	2
2896	B	5	9858	A	4
2899	A	4	9859	A	4
3760	A	5	9860	A	4
3761	A	5	9861	A	3
3801	B	2	9862	C	3
3815	A	3	9863	D	4
3818	A	2	9886	A	3
3820	C	1			
3825	A	1			
3826	A	1			
3827	A	1			
3828	A	1			
3829	A	1			
3830	A	1			
3832	B	2			
3834	B	1			
3835	B	1			
3838	B	1			
3847	C	1			
3848	B	1			
3849	C	1			
3851	B	1			
3860	A	4			
3863	D	3			
3864	D	3			
3865	D	3			



cc

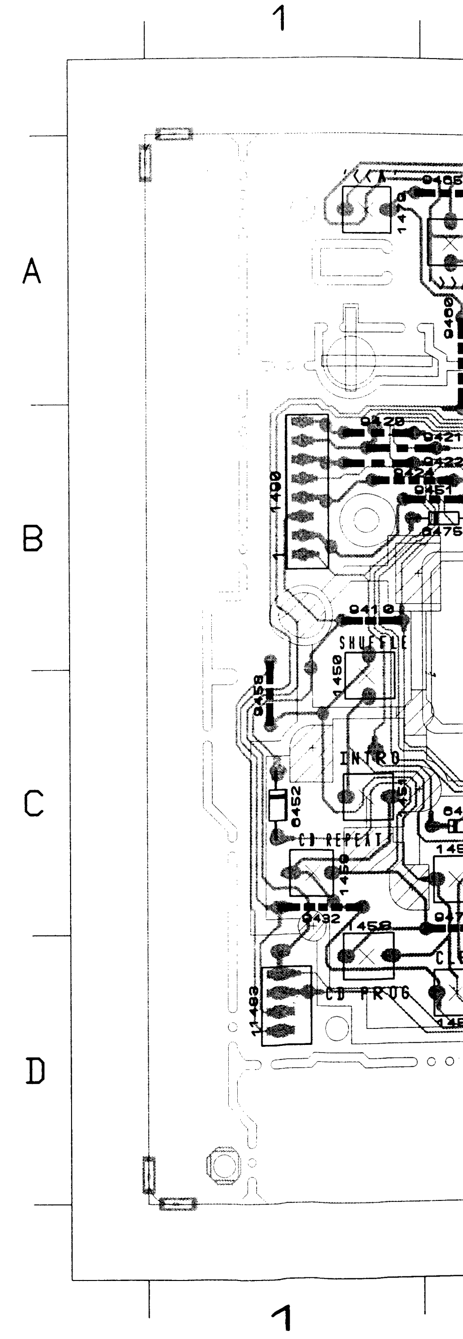
2752	B2	3792	D3
2762	C3	3793	D3
2763	B3	3794	D3
2764	B3	3795	D3
2803	B2	3796	D3
2804	B2	3797	D3
2805	B2	3798	D3
2806	B2	3799	D2
2807	B2	3802	B2
2808	B2	3803	B2
2809	A2	3804	B2
2810	B2	3805	A2
2811	B2	3806	B2
2814	B2	3807	B2
2820	A1	3808	B2
2821	A1	3809	A2
2822	A1	3810	B2
2823	A1	3811	A2
2824	A1	3812	A2
2825	A1	3813	A2
2826	A1	3814	A2
2827	A1	3816	D4
2828	A1	3817	C2
2829	A1	3819	C2
2830	A1	3821	A1
2832	B1	3822	A1
2834	A2	3823	B1
2836	B1	3824	A1
2837	C1	3831	B1
2838	B1	3833	B1
2839	B1	3836	B1
2840	C1	3837	B1
2841	B3	3839	B1
2844	C1	3840	B1
2851	C1	3841	A5
2852	B3	3842	A4
2853	B1	3843	B3
2854	C5	3844	C1
2855	A2	3845	A4
2857	B3	3846	C1
2858	B3	3850	B1
2859	B3	3852	C1
2861	B3	3853	C1
2862	B3	3855	C3
2867	C4	3856	A3
2876	D4	3857	B1
2877	C4	3858	C1
2878	D5	3862	B3
2879	D5	3866	B1
2883	B4	3872	B4
2886	D2	3876	D4
2890	C3	3877	C4
2891	C3	3878	D4
2893	D3	3879	C4
2894	D3	3880	D4
2895	D3	3881	D4
2897	A5	3887	C2
2898	A4	3889	D4
3751	B2	3892	D3
3752	B2	3893	D3
3755	B1	3894	D4
3762	B3	3895	A5
3763	B3	3896	A5
3764	B3	7800	B2
3770	B3	7830	C3
3781	C3	7850	B1
3782	B1	7860	B3
3783	B4	7880	D4
3784	B2	9870	C2
3785	B2	9880	C1
3786	A3	9881	C2
3787	A4	9882	B1
3788	C3	9883	B1
3789	D3	9884	C4
3790	D3	9885	B3

CDC MECHANISM ELECTRONICS

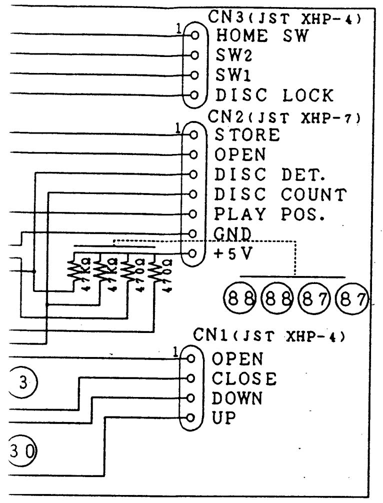

TO CD BOARD
1808
1807
1802
(1)
(1)
(1)
GND
7
D
4
E
sw3
82
sw1
82
sw2
82
A
B
C
95
82
88
87
87
88
83
85
30
RED MARK
A
86
F
D
81
F
3
REF. HOLE
81 -2
82 -1
82 -3
82 -2
95
81 -1
82 -4
CN3(JST XHP-4)
1
HOME SW
SW2
SW1
DISC LOCK
CN2(JST XHP-7)
1
STORE
OPEN
DISC DET.
DISC COUNT
PLAY POS.
GND
+5V
4.7kΩ
4.7kΩ
470Ω
470Ω
86
88
88
87
87
CN1(JST XHP-4)
1
OPEN
CLOSE
DOWN
UP
M
3
M
30
85
60
TO CD BOARD 1806
(1)
RED MARK
LETTER MARK

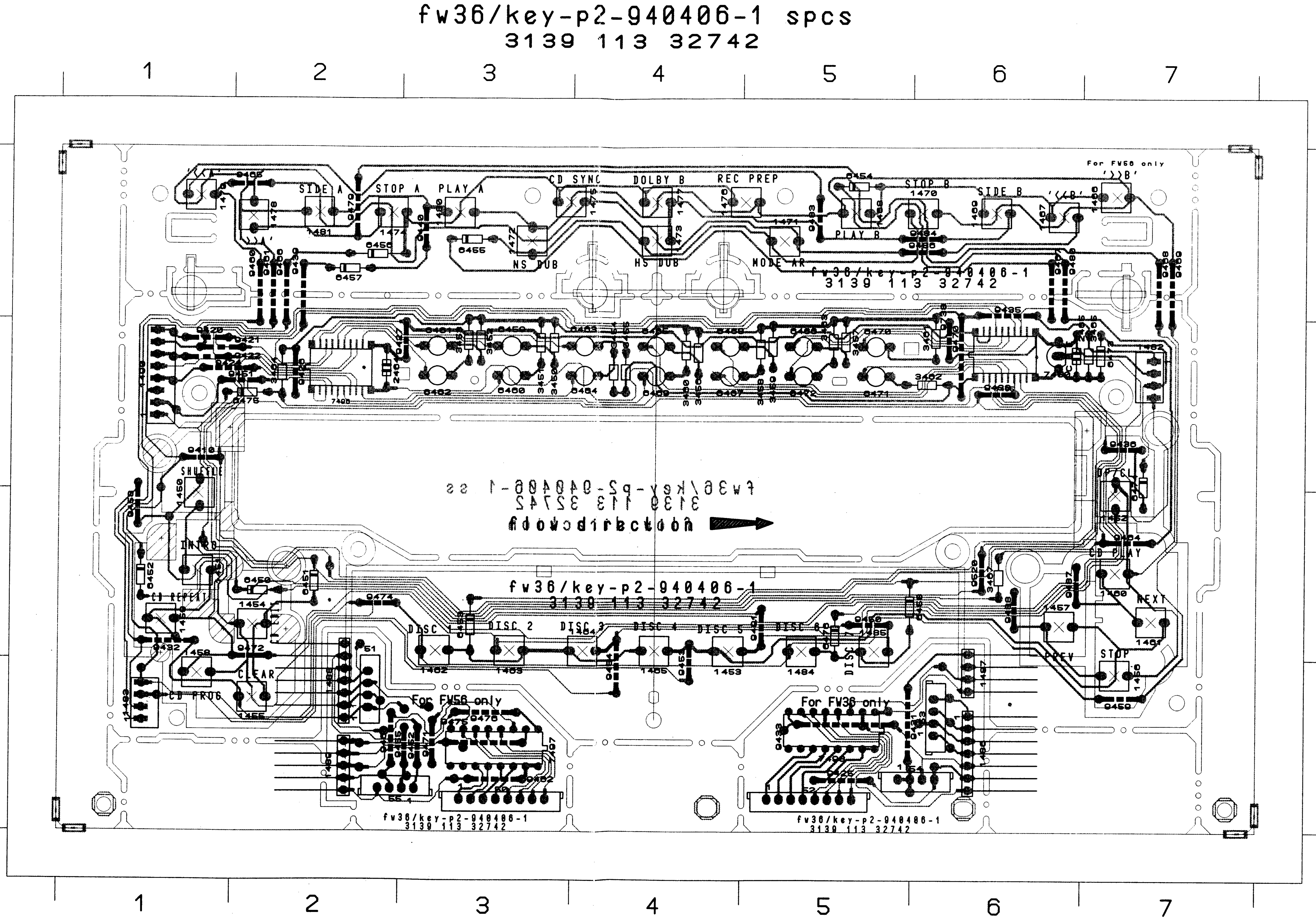
NOTE: NUMBERS IN CIRCLES REFERS TO POSITION NUMBERS IN THE CDC EXPLODED VIEW.

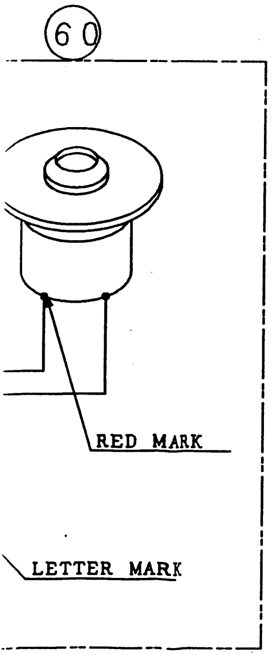
CDC KEY COMPONENT L


1
A
B
C
D
1
1490
1450
SHUFFLE
INTRO
CD REPEAT
CD PROG
1493

CDC KEY COMPONENT LAYOUT

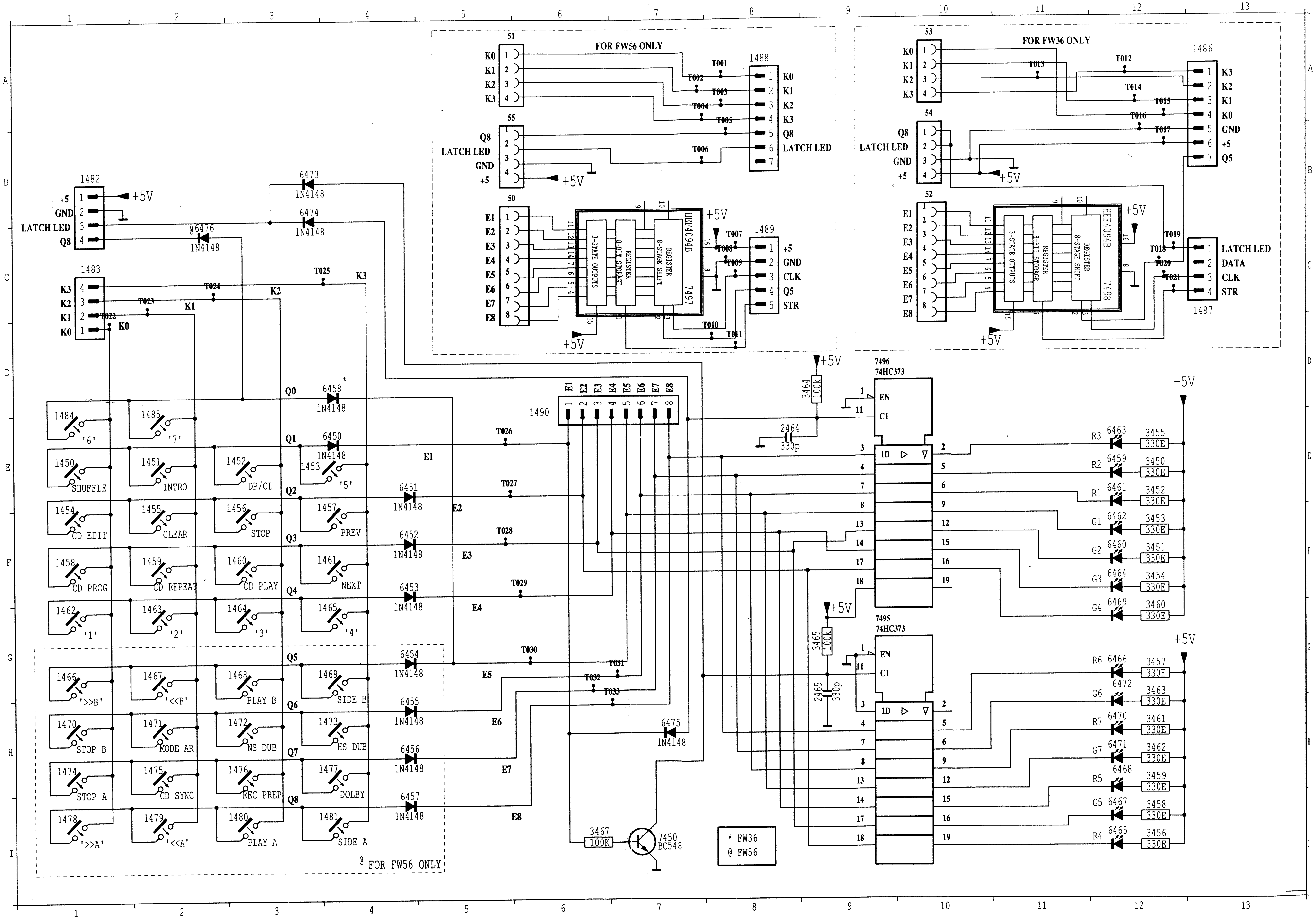

CN3 (JST XHP-4)
HOME SW
SW2
SW1
DISC LOCK
CN2 (JST XHP-7)
STORE
OPEN
DISC DET.
DISC COUNT
PLAY POS.
GND
+5V
47kΩ
CN1 (JST XHP-4)
OPEN
CLOSE
DOWN
UP
88
88
87
87
3
30


fw36/key-p2-940406-1 spcs
3139 113 32742
1
2
3
4
5
6
7
A
B
C
D
SIDE A
STOP A
PLAY A
CD SYNC
DOLBY B
REC PREP
STOP B
SIDE B
For FW56 only
NS DUB
HS DUB
MODE AR
PLAY B
SHUFFLE
INTRO
CD REPEAT
CLEAR
CD PROG
DISC 1
DISC 2
DISC 3
DISC 4
DISC 5
DISC 6
OPEN/CL
CD PLAY
NEXT
PREV
STOP
For FW56 only
For FW36 only
fw36/key-p2-940406-1
3139 113 32742
mode direction

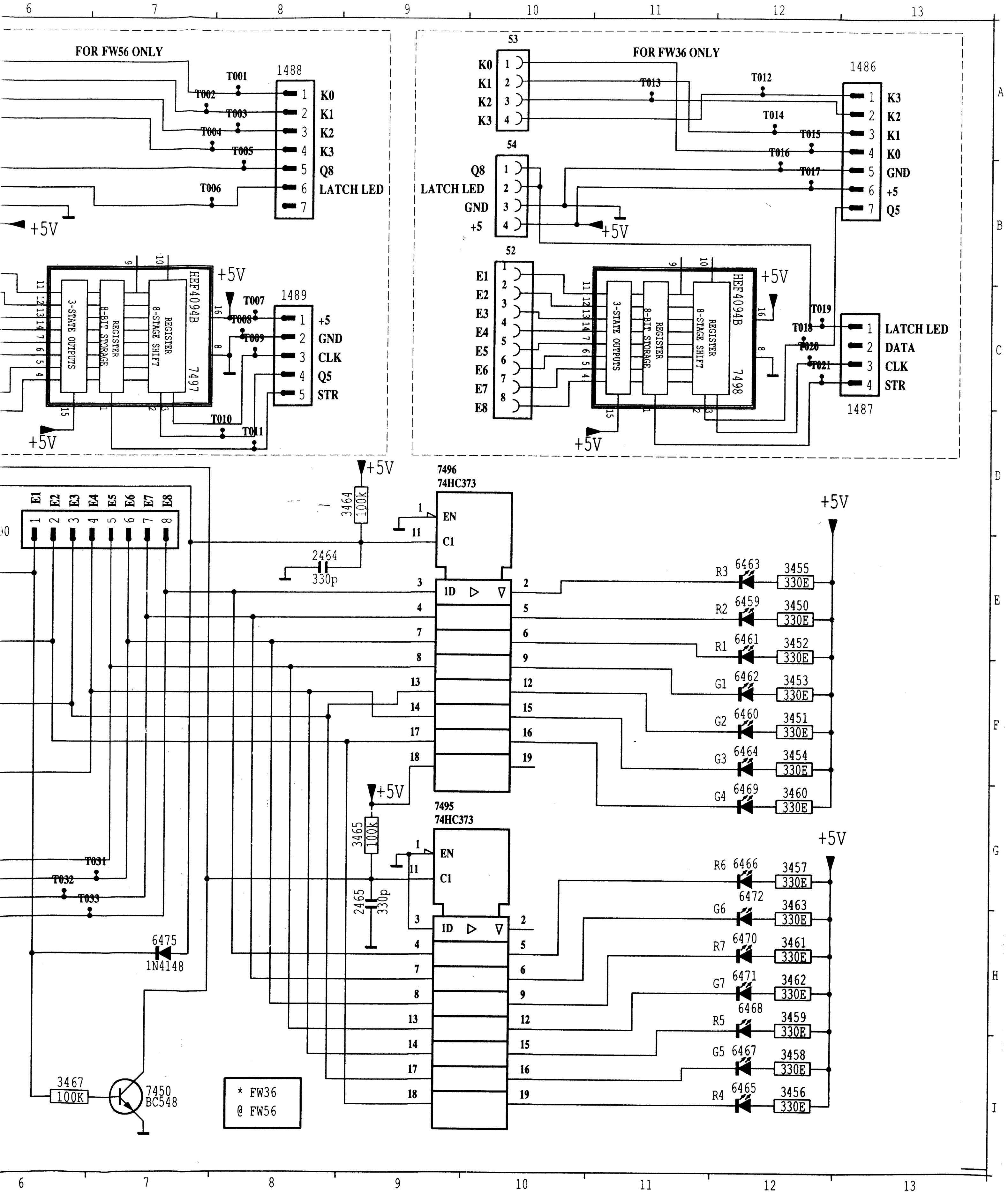

60
RED MARK
LETTER MARK

50	D 3	3459	B 5	9454
51	D 2	3460	B 4	9455
52	D 5	3461	B 6	9458
53	D 6	3462	B 6	9459
54	D 6	3463	B 5	9460
55	D 2	3464	B 2	9461
1450	C 1	3465	B 7	9462
1451	C 1	3467	C 6	9463
1452	C 7	6450	C 2	9464
1453	C 4	6451	C 2	9465
1454	C 2	6452	C 1	9466
1455	D 2	6453	C 3	9467
1456	D 7	6454	A 5	9468
1457	C 6	6455	A 3	9469
1458	D 1	6456	A 2	9470
1459	C 1	6457	A 2	9471
1460	C 7	6458	C 5	9472
1461	C 7	6459	B 3	9474
1462	C 3	6460	B 3	9475
1463	C 3	6461	B 3	9476
1464	C 4	6462	B 3	9479
1465	C 4	6463	B 4	9480
1466	A 7	6464	B 4	9483
1467	A 6	6465	B 4	9484
1468	A 5	6466	B 5	9486
1469	A 6	6467	B 4	9487
1470	A 6	6468	B 4	9488
1471	A 5	6469	B 4	9491
1472	A 3	6470	B 5	9520
1473	A 4	6471	B 5	9738
1474	A 2	6472	B 5	
1475	A 3	6473	B 7	
1476	A 5	6474	B 7	
1477	A 4	6475	B 2	
1478	A 2	6476	C 5	
1479	A 1	7450	B 6	
1480	A 3	7497	D 3	
1481	A 2	7498	D 5	
1482	B 7	9410	B 1	
1483	D 1	9420	B 1	
1484	C 5	9421	B 1	
1485	C 5	9422	B 1	
1486	D 6	9424	B 1	
1487	D 6	9425	D 5	
1488	D 2	9426	B 2	
1489	D 2	9427	B 3	
1490	B 1	9431	D 5	
2464	B 2	9432	C 1	
2465	B 6	9433	D 5	
3450	B 3	9435	A 6	
3451	B 3	9436	B 7	
3452	B 3	9438	B 6	
3453	B 3	9439	A 2	
3454	B 4	9440	A 3	
3455	B 4	9450	C 5	
3456	B 4	9451	B 2	
3457	B 5	9452	D 3	
3458	B 5	9453	D 4	

CDC KEY CIRCUIT


FOR FW56 ONLY
FOR FW36 ONLY
1482
+5
GND
LATCH LED
Q8
+5V
1483
K3
K2
K1
K0
6473
6474
6476
1N4148
T022
T023
T024
T025
1484 '6'
1485 '7'
1450 SHUFFLE
1451 INTRO
1452 DP/CL
1453 '5'
1454 CD EDIT
1455 CLEAR
1456 STOP
1457 PREV
1458 CD PROG
1459 REPEAT
1460 CD PLAY
1461 NEXT
1462 '1'
1463 '2'
1464 '3'
1465 '4'
1466 '>>B'
1467 '<<B'
1468 PLAY B
1469 SIDE B
1470 STOP B
1471 MODE AR
1472 NS DUB
1473 HS DUB
1474 STOP A
1475 CD SYNC
1476 REC PREP
1477 DOLBY
1478 '>>A'
1479 '<<A'
1480 PLAY A
1481 SIDE A
@ FOR FW56 ONLY
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
6458*
6450
6451
6452
6453
6454
6455
6456
6457
E1
E2
E3
E4
E5
E6
E7
E8
T026
T027
T028
T029
T030
T031
T032
T033
1490
51
55
50
1488
1489
HEF4094B
7497
3-STATE OUTPUTS
8-BIT STORAGE REGISTER
8-STAGE SHIFT REGISTER
T001
T002
T003
T004
T005
T006
T007
T008
T009
T010
T011
+5
GND
CLK
Q5
STR
53
54
52
1486
1487
7498
T012
T013
T014
T015
T016
T017
T018
T019
T020
T021
LATCH LED
DATA
3464 100k
2464 330p
3465 100k
2465 330p
7496 74HC373
7495 74HC373
EN
C1
1D
6475 1N4148
3467 100K
7450 BC548
* FW36
@ FW56
R3 6463 3455 330E
R2 6459 3450 330E
R1 6461 3452 330E
G1 6462 3453 330E
G2 6460 3451 330E
G3 6464 3454 330E
G4 6469 3460 330E
R6 6466 3457 330E
G6 6472 3463 330E
R7 6470 3461 330E
G7 6471 3462 330E
R5 6468 3459 330E
G5 6467 3458 330E
R4 6465 3456 330E
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13

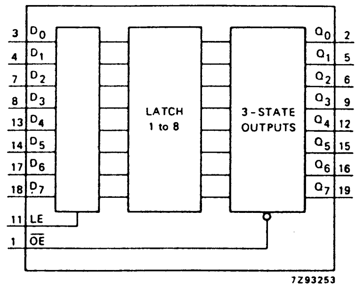
1450	E 1
1451	E 2
1452	E 3
1453	E 3
1454	F 1
1455	F 2
1456	F 3
1457	F 4
1458	F 1
1459	F 2
1460	F 3
1461	F 4
1462	G 1
1463	G 2
1464	G 3
1465	G 4
1466	G 1
1467	G 2
1468	G 3
1469	G 4
1470	H 1
1471	H 2
1472	H 3
1473	H 4
1474	H 1
1475	H 2
1476	H 3
1477	H 4
1478	I 1
1479	I 2
1480	I 3
1481	I 4
1482	B 1
1483	C 1
1484	E 1
1485	E 2
1486	A13
1487	D13
1488	A 8
1489	C 8
1490	E 6
2464	E 8
2465	G 9
3450	E12
3451	F12
3452	E12
3453	F12
3454	F12
3455	E12
3456	I12
3457	G12
3458	I12
3459	H12
3460	G12
3461	H12
3462	H12
3463	G12
3464	D 9
3465	G 9
3467	I 6
50	B 6
51	A 6
52	B10
53	A10
54	A10
55	A 6
6450	E 4
6451	E 4
6452	F 4
6453	F 4
6454	G 4
6455	H 4
6456	H 4
6457	I 4
6458	D 4
6459	E12
6460	F12
6461	E12
6462	F12
6463	E12
6464	F12
6465	I12
6466	G12
6467	I12
6468	H12
6469	G12
6470	H12
6471	H12
6472	G12
6473	B 3
6474	B 3
6475	H 7
6476	C 2
7450	I 7
7495	G 9
7496	D 9
7497	C 7
7498	C12



6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
FOR FW56 ONLY
FOR FW36 ONLY
1488
1489
1486
1487
T001
T002
T003
T004
T005
T006
T007
T008
T009
T010
T011
T012
T013
T014
T015
T016
T017
T018
T019
T020
T021
T031
T032
T033
K0
K1
K2
K3
Q8
LATCH LED
GND
+5
Q5
CLK
STR
DATA
E1
E2
E3
E4
E5
E6
E7
E8
50
51
52
53
54
+5V
HEF4094B
7497
7498
3-STATE OUTPUTS
8-BIT STORAGE REGISTER
8-STAGE SHIFT REGISTER
7496
74HC373
7495
74HC373
EN
C1
1D
3464
100k
3465
100k
2464
330p
2465
330p
R3
R2
R1
G1
G2
G3
G4
R6
G6
R7
G7
R5
G5
R4
6463
6459
6461
6462
6460
6464
6469
6466
6472
6470
6471
6468
6467
6465
3455
3450
3452
3453
3451
3454
3460
3457
3463
3461
3462
3459
3458
3456
330E
6475
1N4148
3467
100K
7450
BC548
* FW36
@ FW56

1450	E 1
1451	E 2
1452	E 3
1453	E 3
1454	F 1
1455	F 2
1456	F 3
1457	F 4
1458	F 1
1459	F 2
1460	F 3
1461	F 4
1462	G 1
1463	G 2
1464	G 3
1465	G 4
1466	G 1
1467	G 2
1468	G 3
1469	G 4
1470	H 1
1471	H 2
1472	H 3
1473	H 4
1474	H 1
1475	H 2
1476	H 3
1477	H 4
1478	I 1
1479	I 2
1480	I 3
1481	I 4
1482	B 1
1483	C 1
1484	E 1
1485	E 2
1486	A13
1487	D13
1488	A 8
1489	C 8
1490	E 6
2464	E 8
2465	G 9
3450	E12
3451	F12
3452	E12
3453	F12
3454	F12
3455	E12
3456	I12
3457	G12
3458	I12
3459	H12
3460	G12
3461	H12
3462	H12
3463	G12
3464	D 9
3465	G 9
3467	I 6
50	B 6
51	A 6
52	B10
53	A10
54	A10
55	A 6
6450	E 4
6451	E 4
6452	F 4
6453	F 4
6454	G 4
6455	H 4
6456	H 4
6457	I 4
6458	D 4
6459	E12
6460	F12
6461	E12
6462	F12
6463	E12
6464	F12
6465	I12
6466	G12
6467	I12
6468	H12
6469	G12
6470	H12
6471	H12
6472	G12
6473	B 3
6474	B 3
6475	H 7
6476	C 2
7450	I 7
7495	G 9
7496	D 9
7497	C 7
7498	C12

IC 7495 & 7496



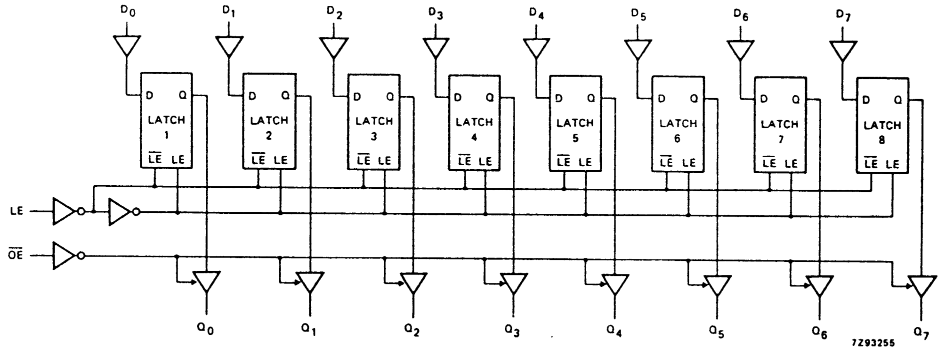
3 D0
4 D1
7 D2
8 D3
13 D4
14 D5
17 D6
18 D7
11 LE
1 OE
LATCH 1 to 8
3-STATE OUTPUTS
Q0 2
Q1 5
Q2 6
Q3 9
Q4 12
Q5 15
Q6 16
Q7 19
7Z93253

Functional diagram.

FUNCTION TABLE

OPERATING MODES	INPUTS			INTERNAL LATCHES	OUTPUTS
	$\overline{OE}$	LE	D_n		Q_0 to Q_7
enable and read register (transparent mode)	L L	H H	L H	L H	L H
latch and read register	L L	L L	l h	L H	L H
latch register and disable outputs	H H	L L	l h	L H	Z Z

H = HIGH voltage level
h = HIGH voltage level one set-up time prior to the HIGH-to-LOW LE transition
L = LOW voltage level
l = LOW voltage level one set-up time prior to the HIGH-to-LOW LE transition
Z = high impedance OFF-state



D0
D1
D2
D3
D4
D5
D6
D7
D Q
LATCH 1
LATCH 2
LATCH 3
LATCH 4
LATCH 5
LATCH 6
LATCH 7
LATCH 8
LE LE
LE
OE
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
7Z93255

Logic diagram.

FRONT CIRCUIT I

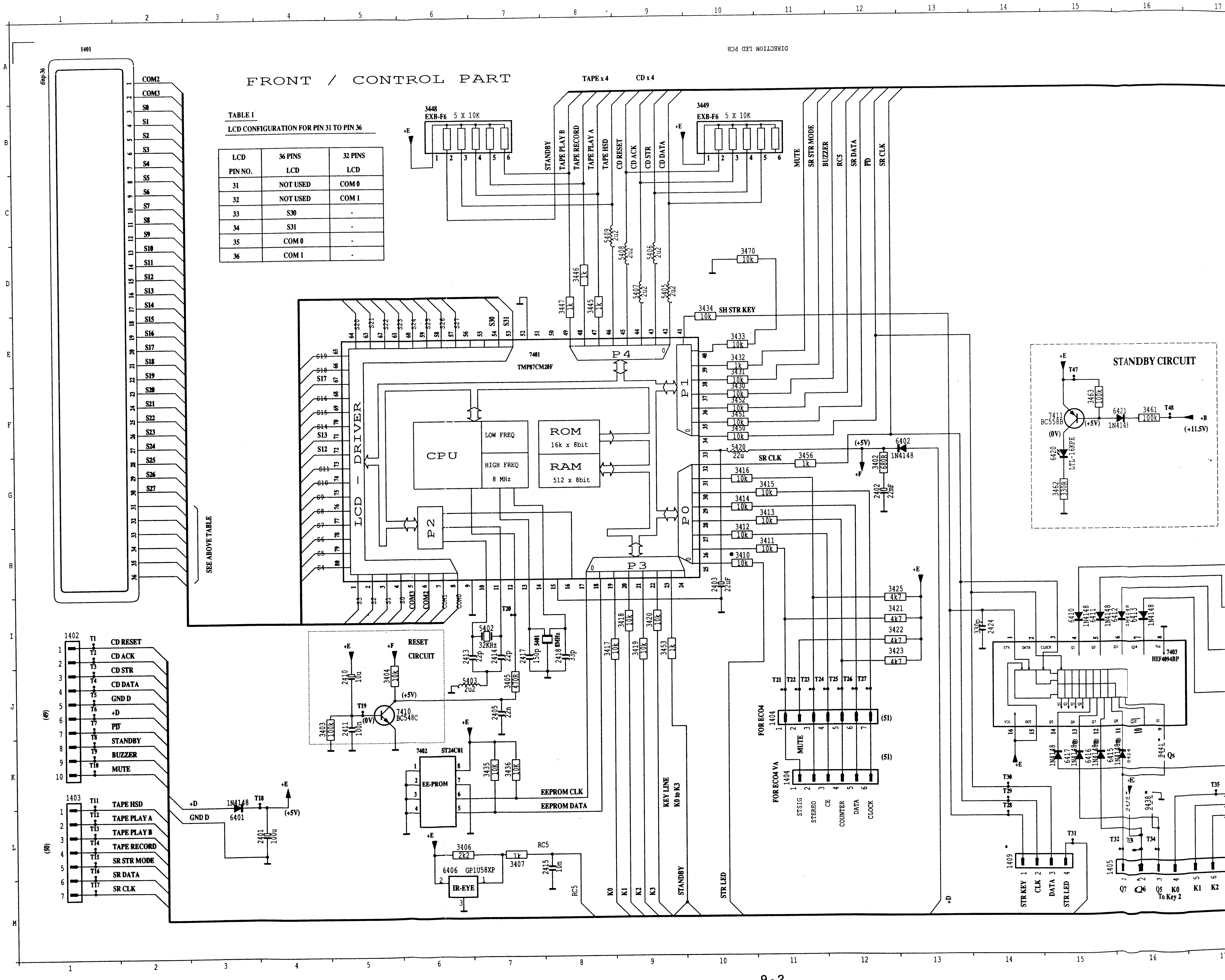
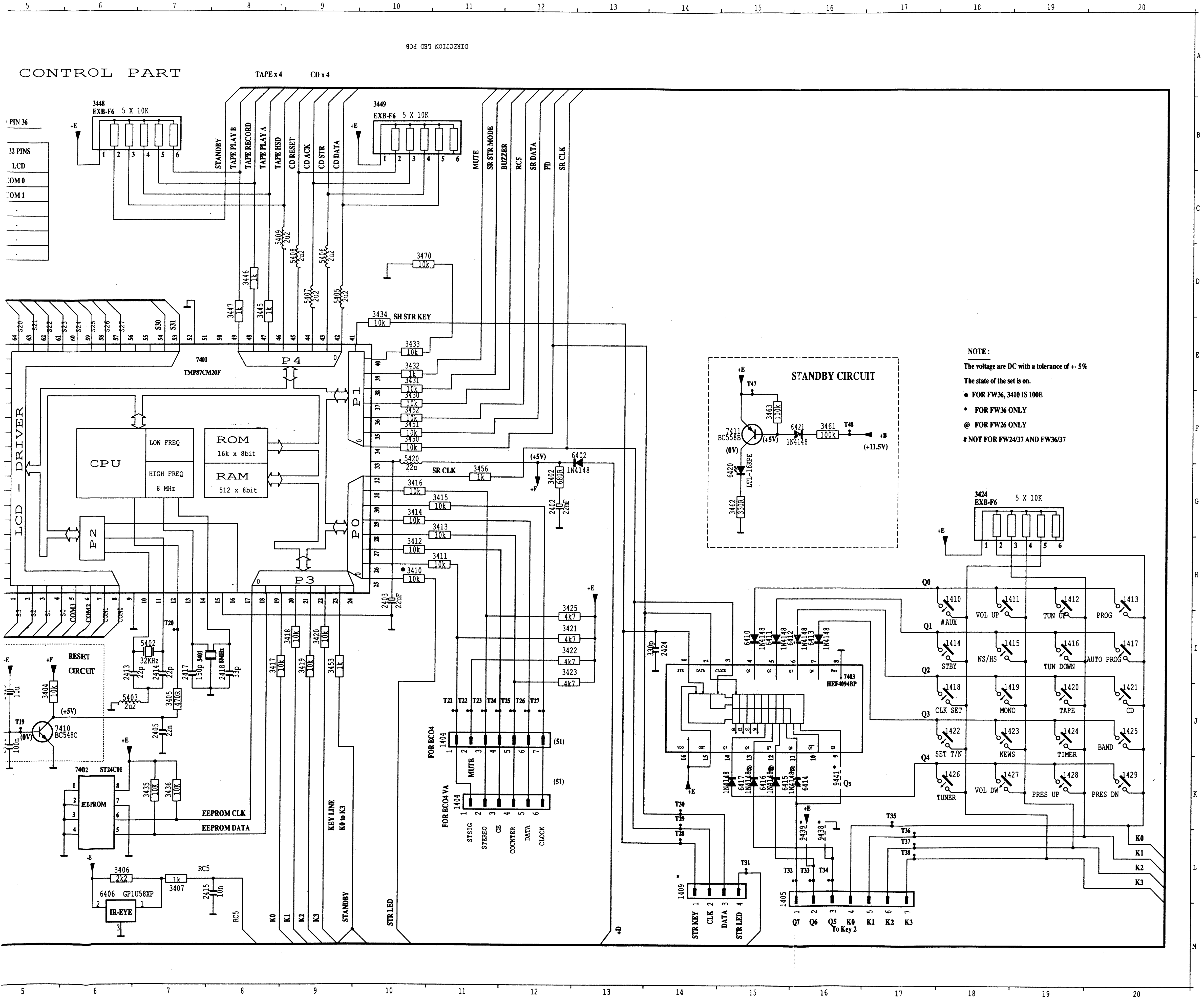

FRONT / CONTROL PART
1401
disp-36
COM2
COM3
SEE ABOVE TABLE
TAPE x 4
CD x 4
3448
EXB-F6 5 X 10K
3449
EXB-F6 5 X 10K
STANDBY
TAPE PLAY B
TAPE RECORD
TAPE PLAY A
TAPE HSD
CD RESET
CD ACK
CD STR
CD DATA
MUTE
SR STR MODE
BUZZER
RC5
SR DATA
PD
SR CLK
SH STR KEY
7401
TMP87CM20F
LCD - DRIVER
CPU
LOW FREQ
HIGH FREQ
8 MHz
ROM
16k x 8bit
RAM
512 x 8bit
P4
P1
P0
P2
P3
STANDBY CIRCUIT
7411
BC558B
6421
1N4148
3461
100k
3463
100k
6420
LTL-16KPE
3462
330R
T47
T48
+B
(+11.5V)
(+5V)
(0V)
6402
1N4148
3402
680R
2402
22mF
3456
SR CLK
RESET CIRCUIT
7410
BC548C
3404
10k
2410
10u
3403
100k
2411
100n
T19
T20
5402
32KHz
5401
8MHz
5403
2u2
3405
470R
2405
22n
7402
ST24C01
EE-PROM
3435
10K
3436
10K
EEPROM CLK
EEPROM DATA
KEY LINE
K0 to K3
1402
CD RESET
CD ACK
CD STR
CD DATA
GND D
+D
PD
STANDBY
BUZZER
MUTE
(49)
1403
TAPE HSD
TAPE PLAY A
TAPE PLAY B
TAPE RECORD
SR STR MODE
SR DATA
SR CLK
(50)
+D
GND D
1N4148
6401
T18
2401
100u
(+5V)
3406
2k2
3407
1k
RC5
2415
10n
6406
GP1U58XP
IR-EYE
RC5
K0
K1
K2
K3
STANDBY
STR LED
T21 T22 T23 T24 T25 T26 T27
FOR ECO4
1404
(51)
MUTE
FOR ECO4 VA
1404
STSIG
STEREO
CE
COUNTER
DATA
CLOCK
3425
4k7
3421
4k7
3422
4k7
3423
4k7
7403
HEF4094BP
2424
330p
1409
STR KEY
CLK
DATA
STR LED
T28
T29
T30
T31
T32
T33
T34
T35
1405
Q7
Q6
Q5
K0
K1
K2
To Key 2
9438
Qs
DIRECTION LED PCB

TABLE I

LCD CONFIGURATION FOR PIN 31 TO PIN 36

LCD PIN NO.	36 PINS LCD	32 PINS LCD
31	NOT USED	COM 0
32	NOT USED	COM 1
33	S30	-
34	S31	-
35	COM 0	-
36	COM 1	-

CONTROL PART


DIRECTION LED PCB
TAPE x 4
CD x 4
3448 EXB-F6 5 X 10K
3449 EXB-F6 5 X 10K
PIN 36
32 PINS
LCD
COM 0
COM 1
STANDBY
TAPE PLAY B
TAPE RECORD
TAPE PLAY A
TAPE HSD
CD RESET
CD ACK
CD STR
CD DATA
MUTE
SR STR MODE
BUZZER
RC5
SR DATA
PD
SR CLK
3470 10k
3434 SH STR KEY 10k
7401 TMP87CM20F
P4
P1
P0
P3
P2
CPU
LOW FREQ
HIGH FREQ 8 MHz
ROM 16k x 8bit
RAM 512 x 8bit
LCD - DRIVER
SR CLK 3456 1k
5420 22u
6402 1N4148
3402 680R
2402 22nF
(+5V)
• 3410 10k
2403 220nF
3425 4k7
3421 4k7
3422 4k7
3423 4k7
RESET CIRCUIT
3404 10k
7410 BC548C
T19
(0V)
(+5V)
5402 32KHz
5401 8MHz
2413 22p
2414 22p
2417 15p
2418 33p
5403 2u2
3405 470R
2405 22n
T20
7402 ST24C01
EEPROM
3435 10K
3436 10K
EEPROM CLK
EEPROM DATA
KEY LINE K0 to K3
6406 GP1U58XP
IR-EYE
3406 2k2
3407 1k
2415 10n
RC5
K0
K1
K2
K3
STANDBY
STR LED
+D
T21 T22 T23 T24 T25 T26 T27
FOR ECO4 1404
(51)
MUTE
FOR ECO4 VA 1404
STSIG
STEREO
CE
COUNTER
DATA
CLOCK
STANDBY CIRCUIT
7411 BC558B
T47
3463 100k
6421 1N4148
3461 100k
T48
+B (+11.5V)
6420 LTL-16KPE
3462 330R
2424 330p
7403 HEF4094BP
STR DATA CLOCK
6410 6411 6412 6413 1N4148
6414 6415 6416 6417 1N4148
9441 Qs
9439 9438
T28 T29 T30 T31
T32 T33 T34 T35 T36 T37 T38
1409
STR KEY 1
CLK 2
DATA 3
STR LED 4
1405
Q7 Q6 Q5 K0 K1 K2 K3
To Key 2
3424 EXB-F6 5 X 10K
Q0 Q1 Q2 Q3 Q4
1410 #AUX
1411 VOL UP
1412 TUN UP
1413 PROG
1414 STBY
1415 NS/HS
1416 TUN DOWN
1417 AUTO PROG
1418 CLK SET
1419 MONO
1420 TAPE
1421 CD
1422 SET T/N
1423 NEWS
1424 TIMER
1425 BAND
1426 TUNER
1427 VOL DW
1428 PRES UP
1429 PRES DN
K0 K1 K2 K3
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M

NOTE :

The voltage are DC with a tolerance of +- 5%

The state of the set is on.

● FOR FW36, 3410 IS 100E

* FOR FW36 ONLY

@ FOR FW26 ONLY

NOT FOR FW24/37 AND FW36/37

1401	A 1
1402	I 1
1403	K 1
1404	K11
1405	L15
1409	L14
1410	H18
1411	H19
1412	H19
1413	H20
1414	I18
1415	I19
1416	I19
1417	I20
1418	J18
1419	J19
1420	J19
1421	J20
1422	J18
1423	J19
1424	J19
1425	J20
1426	K18
1427	K19
1428	K19
1429	K20
2401	L 4
2402	G12
2403	H10
2405	J 7
2410	J 5
2411	J 5
2413	I 6
2414	I 7
2415	L 8
2417	I 7
2418	I 8
2424	I14
3402	G12
3403	J 4
3404	J 5
3405	J 7
3406	L 6
3407	L 7
3410	H10
3411	H11
3412	H10
3413	G11
3414	G10
3415	G11
3416	G10
3417	I 8
3418	I 9
3419	I 9
3420	I 9
3421	J13
3422	J13
3423	J13
3424	G18
3425	I12
3430	F10
3431	E10
3432	E10
3433	E10
3434	E10
3435	K 7
3436	K 7
3445	D 8
3446	D 8
3447	D 8
3448	B 6
3449	B10
3450	F10
3451	F10
3452	F10
3453	I 9
3456	G11
3461	F16
3462	G15
3463	F15
3470	D10
5401	I 7
5402	I 7
5403	J 6
5405	D 9
5406	D 9
5407	D 9
5408	D 9
5409	C 8
5420	F10
6401	L 3
6402	F13
6406	L 6
6410	I15
6411	I15
6412	I16
6413	I16
6414	K16
6415	K15
6416	K15
6417	K15
6420	G15
6421	F16
7401	E 7
7402	K 6
7403	I16
7410	J 5
7411	F15
9438	L16
9439	L16
9441	K16

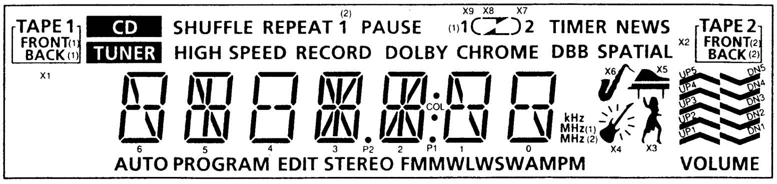
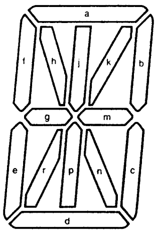
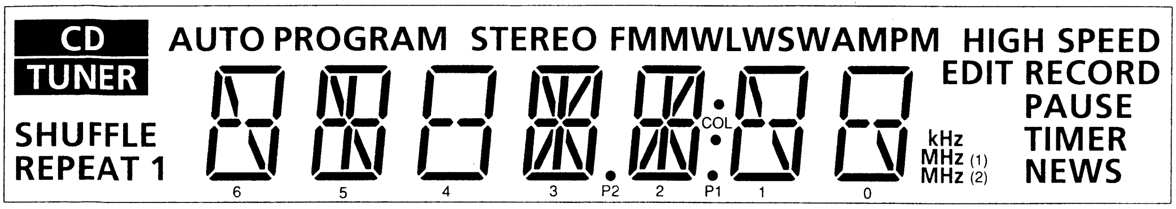

TAPE 1
FRONT(1)
BACK(1)
X1
CD
TUNER
SHUFFLE REPEAT 1 PAUSE
(2)
(1)1
2
X9 X8 X7
TIMER NEWS
HIGH SPEED RECORD DOLBY CHROME DBB SPATIAL
X2
TAPE 2
FRONT(2)
BACK(2)
X6
X5
COL
kHz
MHz(1)
MHz(2)
X4
X3
UP5
UP4
UP3
UP2
UP1
DN5
DN4
DN3
DN2
DN1
6
5
4
3
P2
2
P1
1
0
AUTO PROGRAM EDIT STEREO FMMWLWSWAMPM
VOLUME

Figure 7. LCD pins connections


a
f
h
i
k
b
g
m
e
r
p
n
c
d

FW36/37 LCD DISPLAY PIN CONNECTIONS

PIN NO.	COM 0	COM 1	COM 2	COM 3
1	-	-	COM 2	-
2	-	-	-	COM 3
3	6gm	6f	6e	6n
4	6b	6a	6c	6d
5	FRONT (1)	6h	BACK (1)	TAPE 1,X1
6	SHUFFLE	CD	HIGH SPEED	AUTO
7	5g	5f	5e	PROGRAM
8	5b	5a	5c	5d
9	TUNER	5hn	5m	5jp
10	1 (1), 2	TIMER	RECORD	REPEAT
11	4gm	4f	4e	EDIT
12	4b	4a	4c	4d
13	X7	X9	X8	1 (2)
14	FRONT (2)	X6	BACK (2)	TAPE 2,X2
15	3g	3f	3e	3n
16	3b	3a	3c	3d
17	3k	3h	3m	3jp
18	3r	DBB	PAUSE	STEREO
19	2gm	2f	2e	2n
20	2b	2a	2c	2d
21	2kr	CHROME	DOLBY	2jp
22	LW	-	MW	-
23	1gm	1f	1e	1n
24	1b	1a	1c	1d
25	COL	1h	FM,P1,MHz (1)	SW,P2,MHz (2)
26	X4	kHz	PM	AM
27	0gm	0f	0e	0n
28	0b	0a	0c	0d
29	X3	X5	SPATIAL	NEWS
30	UP1	DN1	-	VOLUME
31	-	-	-	-
32	-	-	-	-
33	DN2	DN3	DN4	DN5
34	UP2	UP3	UP4	UP5
35	COM 0	-	-	-
36	-	COM 1	-	-


CD
TUNER
AUTO PROGRAM STEREO FMMWLWSWAMPM HIGH SPEED
EDIT RECORD
PAUSE
TIMER
NEWS
SHUFFLE
REPEAT 1
COL
kHz
MHz (1)
MHz (2)
6
5
4
3
P2
2
P1
1
0

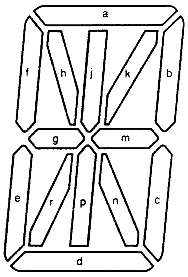

a
f
h
j
k
b
g
m
e
r
p
n
c
d

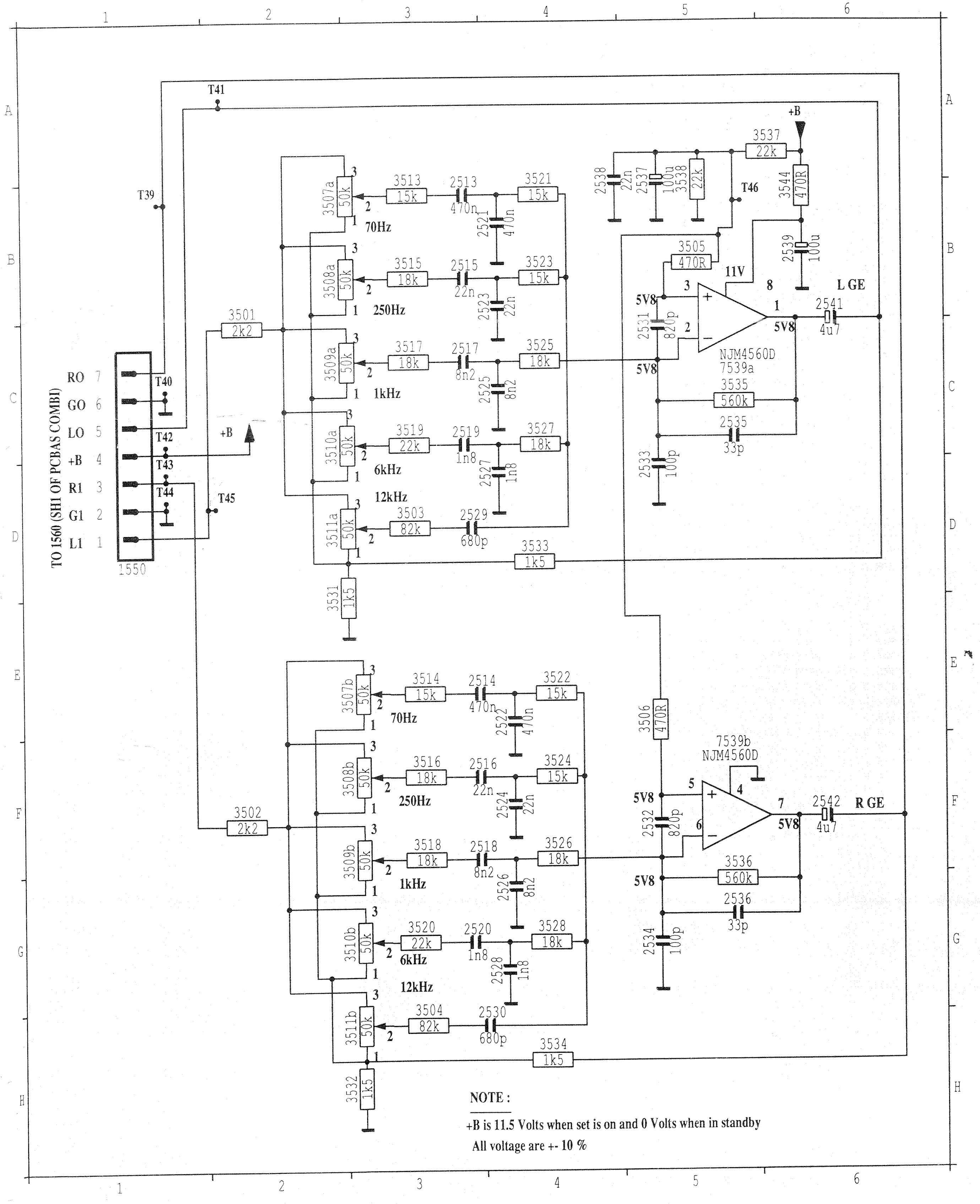
Figure 8. LCD pin connections

FW36/37 LCD DISPLAY PIN CONNECTIONS

PIN NO.	COM 0	COM 1	COM 2	COM 3
1	-	-	COM 2	-
2	-	-	-	COM 3
3	6gm	6f	6e	6n
4	6b	6a	6c	6d
5	-	6h	-	-
6	SHUFFLE	CD	HIGH SPEED	AUTO
7	5g	5f	5e	PROGRAM
8	5b	5a	5c	5d
9	TUNER	5hn	5m	5jp
10	-	TIMER	RECORD	REPEAT
11	4gm	4f	4e	EDIT
12	4b	4a	4c	4d
13	-	-	-	1
14	-	-	-	-
15	3g	3f	3e	3n
16	3b	3a	3c	3d
17	3k	3h	3m	3jp
18	3r	-	PAUSE	STEREO
19	2gm	2f	2e	2n
20	2b	2a	2c	2d
21	2kr	-	-	2jp
22	LW	-	MW	-
23	1gm	1f	1e	1n
24	1b	1a	1c	1d
25	COL	1h	FM,P1,MHz (1)	SW,P2,MHz (2)
26	-	kHz	PM	AM
27	0gm	0f	0e	0n
28	0b	0a	0c	0d
29	-	-	-	NEWS
30	-	-	-	
31	COM 0	-	-	-
32	-	COM 1	-	-

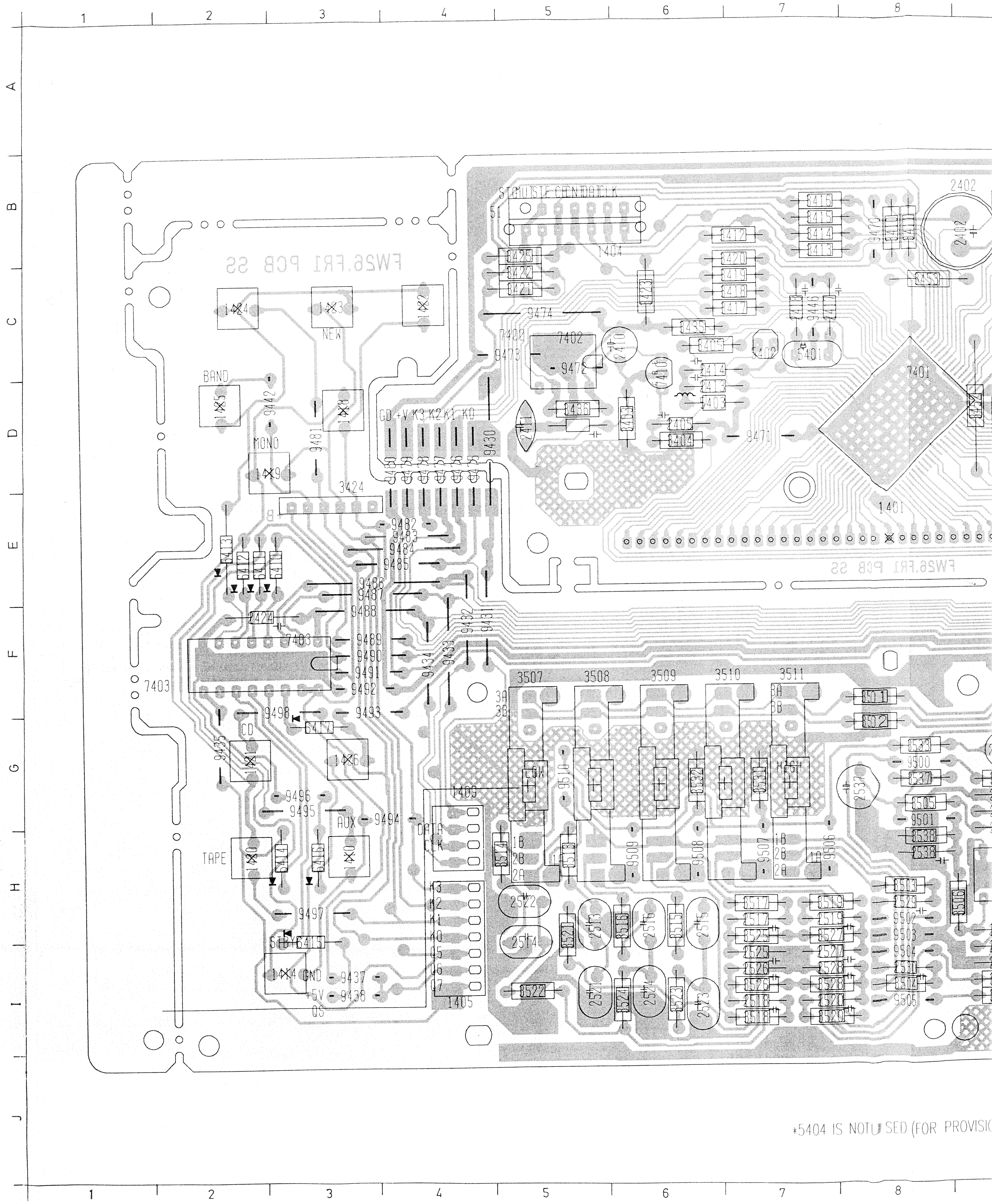
FRONT CIRCUIT II (GE PART)

1550	D 1
2513	B 3
2514	E 3
2515	B 3
2516	F 3
2517	C 3
2518	F 3
2519	C 3
2520	G 3
2521	B 4
2522	E 4
2523	B 4
2524	F 4
2525	C 4
2526	G 4
2527	D 4
2528	G 4
2529	D 3
2530	H 4
2531	C 5
2532	F 5
2533	D 5
2534	G 5
2535	C 5
2536	G 5
2537	A 5
2538	A 4
2539	B 6
2541	B 6
2542	F 6
3501	B 2
3502	F 2
3503	D 3
3504	H 3
3505	B 5
3506	E 5
3507a	B 2
3507b	E 3
3508a	B 2
3508b	F 3
3509a	C 2
3509b	F 3
3510a	C 2
3510b	G 3
3511a	D 2
3511b	H 3
3513	B 3
3514	E 3
3515	B 3
3516	F 3
3517	C 3
3518	F 3
3519	C 3
3520	G 3
3521	B 4
3522	E 4
3523	B 4
3524	F 4
3525	C 4
3526	F 4
3527	C 4
3528	G 4
3531	D 2
3532	H 3
3533	D 4
3534	H 4
3535	C 5
3536	F 5
3537	A 6
3538	A 5
3544	B 6
7539a	C 5
7539b	F 5


1
2
3
4
5
6
A
B
C
D
E
F
G
H
T41
T39
T40
T42
T43
T44
T45
RO 7
GO 6
LO 5
+B 4
R1 3
G1 2
L1 1
TO 1560 (SH1 OF PCBAS COMBI)
1550
+B
3501 2k2
3502 2k2
3507a 50k
3508a 50k
3509a 50k
3510a 50k
3511a 50k
3507b 50k
3508b 50k
3509b 50k
3510b 50k
3511b 50k
70Hz
250Hz
1kHz
6kHz
12kHz
3513 15k
2513 470n
2521 470n
3521 15k
3515 18k
2515 22n
2523 22n
3523 15k
3517 18k
2517 8n2
2525 8n2
3525 18k
3519 22k
2519 1n8
2527 1n8
3527 18k
3503 82k
2529 680p
3533 1k5
3531 1k5
2538 22n
2537 100u
3538 22k
3537 22k
T46
3544 470R
2539 100u
3505 470R
11V
5V8
2531 820p
NJM4560D
7539a
3535 560k
2535 33p
2533 100p
2541 4u7
L GE
3514 15k
2514 470n
2522 470n
3522 15k
3516 18k
2516 22n
2524 22n
3524 15k
3518 18k
2518 8n2
2526 8n2
3526 18k
3520 22k
2520 1n8
2528 1n8
3528 18k
3504 82k
2530 680p
3534 1k5
3532 1k5
3506 470R
7539b
NJM4560D
2532 820p
3536 560k
2536 33p
2534 100p
2542 4u7
R GE

NOTE :
+B is 11.5 Volts when set is on and 0 Volts when in standby
All voltage are +- 10 %

FRONT COMPONENT LAYOUT


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
FW26.FR1 PCB SS
1401
1404
1405
1406
7401
7402
7403
2402
BAND
MONO
NEW
TAPE
CD
AUX
DATA
CLK
GND
+5V
3507
3508
3509
3510
3511
9474
9472
9471
9473
9442
9481
9430
9482
9483
9484
9485
9486
9487
9488
9489
9490
9491
9492
9493
9434
9433
9432
9431
9435
9496
9495
9494
9497
9498
9437
9438
9500
9501
9502
9503
9504
9505
9506
9507
9508
9509
9510
3424
2537
2522
2514
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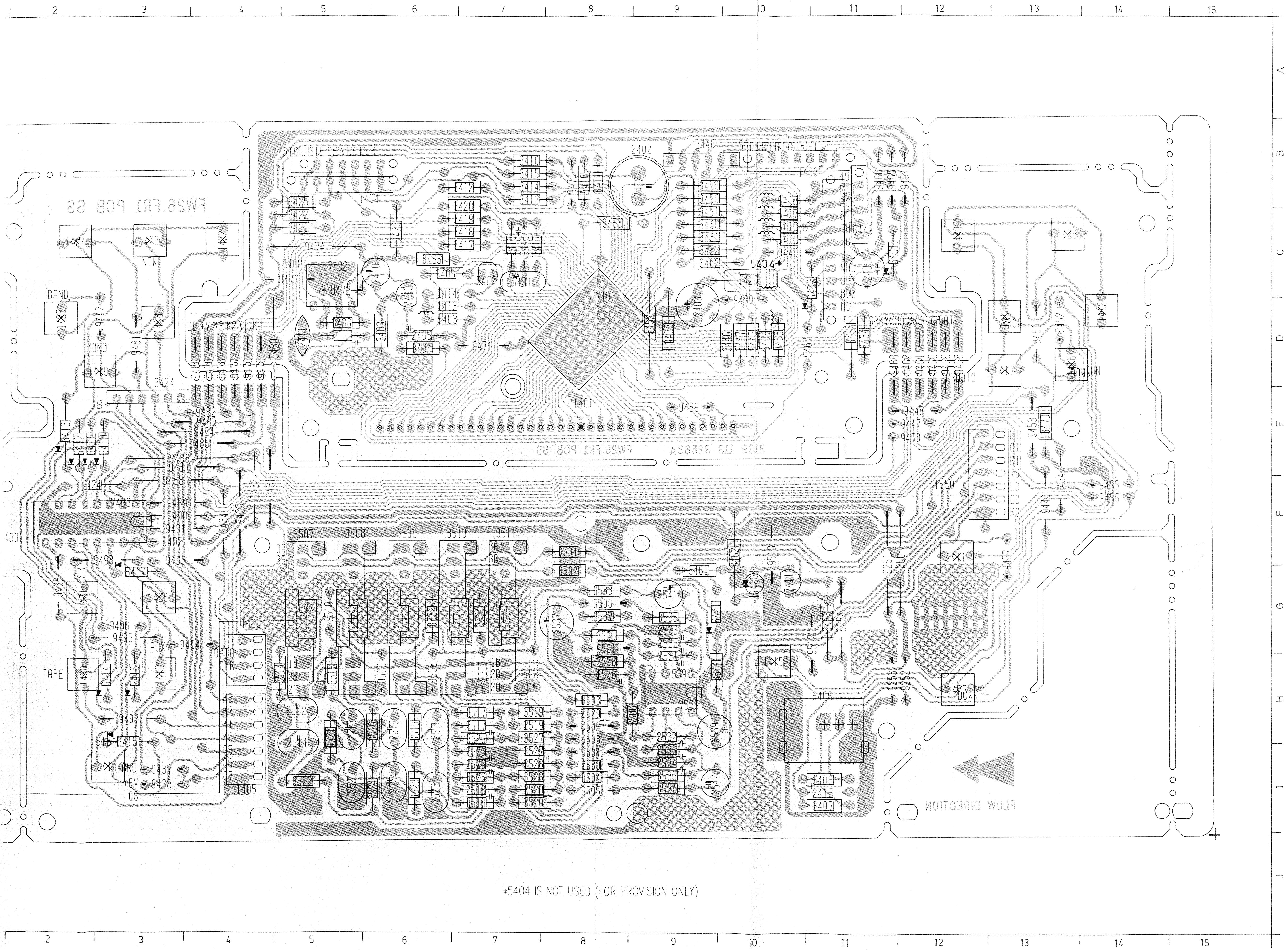
2520
2521
2523
2524
2525
2526
2527
2528

*5404 IS NOTU SED (FOR PROVISI

COMPONENT LAYOUT



*5404 IS NOT USED (FOR PROVISION ONLY)

1401	E8	3424	E3	7411	G10
1403	B10	3425	B5	7539	H9
1404	B5	3430	C9	9250	F11
1405	I4	3431	C9	9251	F11
1409	G4	3432	C9	9252	I12
1410	H3	3433	D9	9253	H11
1411	F12	3434	D11	9254	G11
1412	D14	3435	C6	9430	D4
1413	D13	3436	D5	9431	F4
1414	I3	3445	D10	9432	F4
1415	H10	3446	D10	9433	F4
1416	D13	3447	D10	9434	F4
1417	D13	3448	B9	9435	G2
1418	G3	3449	C11	9437	I3
1419	D2	3450	B9	9438	I3
1420	H2	3451	C9	9441	F13
1421	G2	3452	D9	9446	C7
1422	C4	3453	C8	9447	E12
1423	C3	3454	D11	9448	E12
1424	C2	3456	B9	9449	C10
1425	D2	3461	G9	9450	E12
1426	G3	3462	F10	9451	D13
1427	I12	3463	G11	9452	D13
1428	C13	3468	D10	9453	E11
1429	C12	3470	E11	9454	F13
1550	F12	3501	F8	9455	F14
2402	B9	3502	G8	9456	F14
2403	D9	3503	H8	9457	F13
2405	D6	3504	I8	9458	D12
2410	C6	3505	G8	9459	D12
2411	D5	3506	H9	9460	D12
2413	D6	3507	G5	9461	D12
2414	C6	3508	G5	9462	D12
2415	I11	3509	G6	9463	D12
2417	C7	3510	G7	9463	D11
2418	C7	3511	G7	9464	B11
2424	F2	3513	H5	9465	B11
2513	H5	3514	H5	9466	B11
2514	H5	3515	H6	9467	D10
2515	H6	3516	H6	9469	E9
2516	H6	3517	H7	9470	B8
2517	H7	3518	I7	9471	D7
2518	I7	3519	H7	9472	C5
2519	H7	3520	I7	9473	C5
2520	I7	3521	H5	9474	C5
2521	I5	3522	I5	9475	D4
2522	H5	3523	I6	9476	D4
2523	I6	3524	I6	9477	D4
2524	I6	3526	I7	9478	D4
2525	I7	3527	H7	9479	D4
2526	I7	3528	I7	9480	D4
2527	I7	3531	G7	9481	G3
2528	I7	3532	G6	9482	E4
2529	H8	3533	G8	9483	E4
2530	I8	3534	I9	9484	E4
2531	H9	3535	H7	9485	E4
2532	H9	3535	G9	9486	E3
2533	G9	3536	I9	9487	E3
2534	I9	3537	G8	9488	F3
2535	G9	3538	H8	9489	F3
2536	I9	3544	H9	9490	F3
2537	G8	5401	C7	9491	F3
2538	H8	5402	C7	9491	F3
2539	H9	5403	D6	9492	F3
2541	G9	5404	C10	9493	F3
2542	I9	5405	C10	9494	G3
3401	C11	5406	C10	9494	G4
3402	C9	5407	C10	9495	G3
3403	D6	5408	B10	9496	G3
3404	D6	5409	D10	9497	H3
3405	C6	5420	C10	9498	F3
3406	I11	6401	C11	9499	D10
3407	I11	6406	H11	9500	G8
3410	B8	6410	E3	9501	G8
3411	B8	6411	E2	9502	H8
3412	B7	6412	E2	9503	H8
3413	B7	6413	E2	9504	I8
3414	B7	6414	H3	9505	I8
3415	B7	6415	H3	9506	H7
3416	B7	6416	H3	9507	H7
3417	C7	6417	G3	9508	H6
3418	C7	6420	G10	9509	H6
3419	C7	6421	G9	9510	G5
3420	B7	7401	D8	9512	G11
3421	C5	7402	C5	9513	F10
3422	C5	7403	F2		
3423	C6	7410	C6		

COMBI BOARD COMPONENT LAYOUT

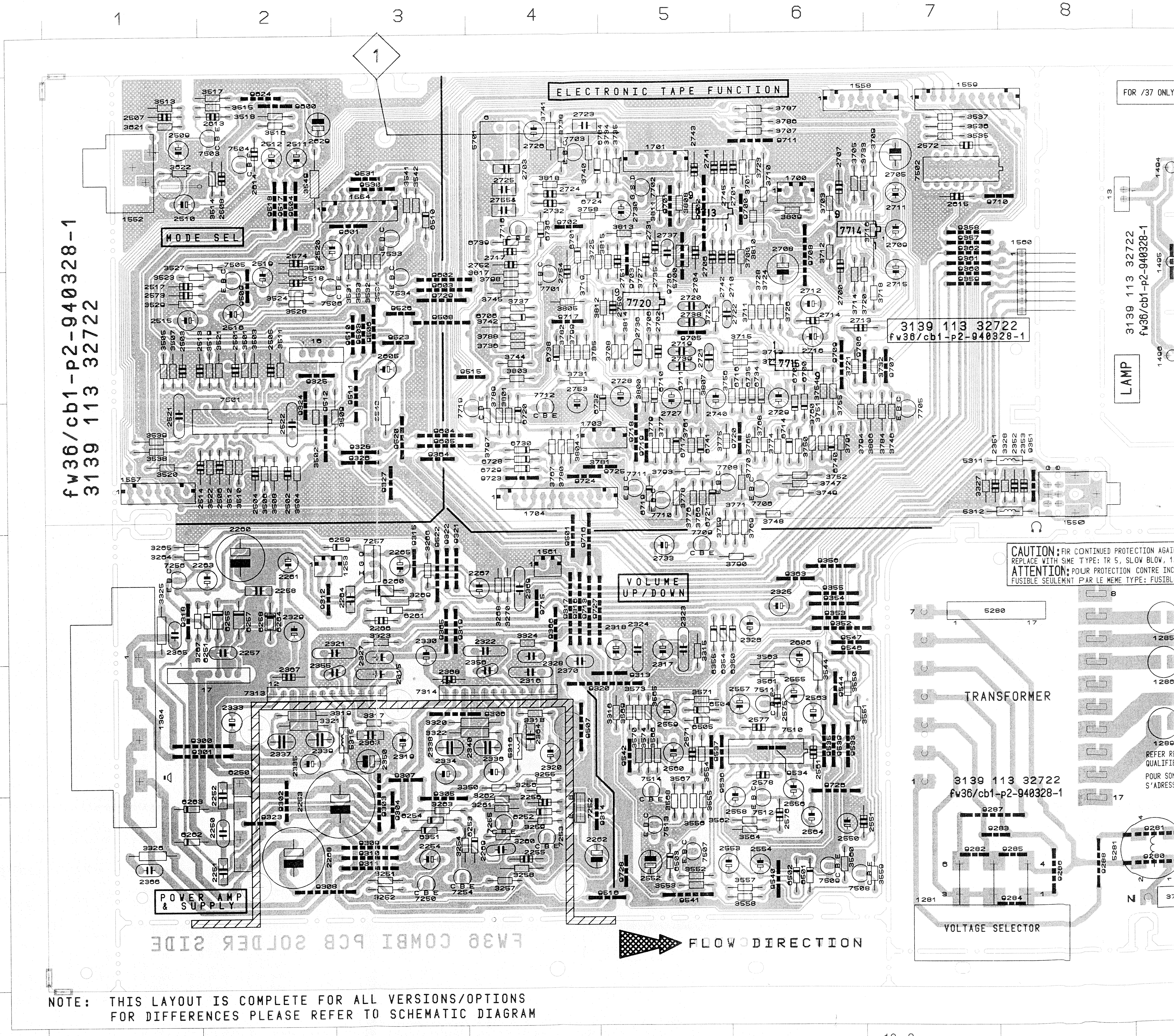
7713 A5
7714 A6
7715 B6
7720 B5

BIAS OSCILLATOR ADJUSTMENT

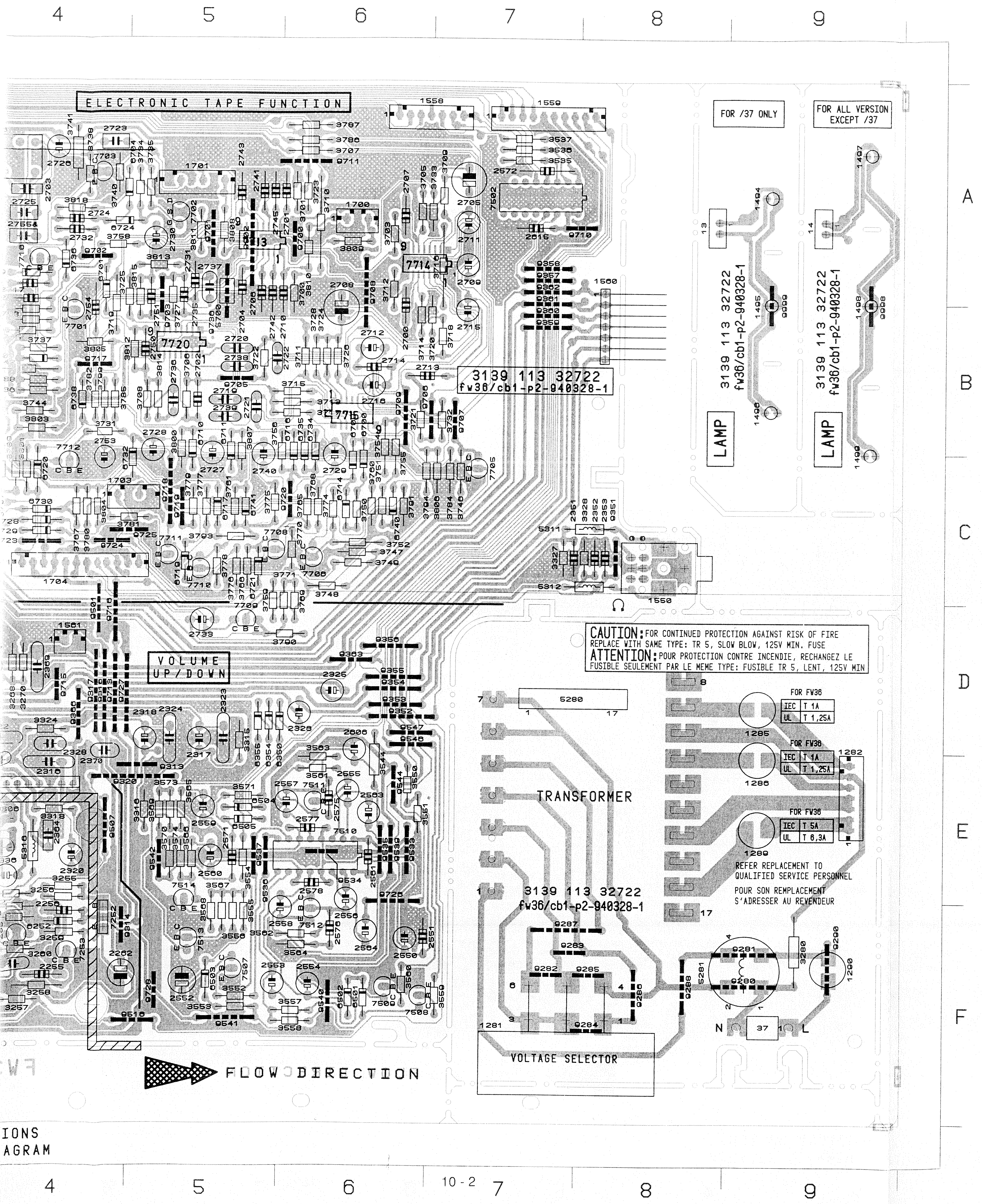
TAPE DECK POSITION	MEASURE ON	READ ON	ADJUST WITH	ADJUST TO
Record	1	Frequency counter	5701	65kHz ± 5kHz

RIF Service solution:

Add capacitor 2755 10nF 5% (4822 121 41857) across capacitor 2725 as indicated in the circuit.


1
2
3
4
5
6
7
8
A
B
C
D
E
F
ELECTRONIC TAPE FUNCTION
MODE SEL
VOLUME UP/DOWN
POWER AMP & SUPPLY
TRANSFORMER
VOLTAGE SELECTOR
LAMP
FOR /37 ONLY
fw36/cb1-p2-940328-1
3139 113 32722
5701
7713
7714
7715
7720
CAUTION: FIR CONTINUED PROTECTION AGAI
REPLACE WITH SAME TYPE: TR 5, SLOW BLOW, 1
ATTENTION: POUR PROTECTION CONTRE INC
FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBL
REFER R
QUALIFI
POUR SON
S'ADRESS
FLOW DIRECTION
FW36 COMBI PCB SOLDER SIDE

NOTE: THIS LAYOUT IS COMPLETE FOR ALL VERSIONS/OPTIONS
FOR DIFFERENCES PLEASE REFER TO SCHEMATIC DIAGRAM


4
5
6
7
8
9
A
B
C
D
E
F
ELECTRONIC TAPE FUNCTION
FOR /37 ONLY
FOR ALL VERSION EXCEPT /37
LAMP
LAMP
3139 113 32722
fw36/cb1-p2-940328-1
VOLUME UP/DOWN
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE: TR 5, SLOW BLOW, 125V MIN. FUSE
ATTENTION: POUR PROTECTION CONTRE INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBLE TR 5, LENT, 125V MIN
FOR FW36
IEC T 1A
UL T 1,25A
1285
FOR FW36
IEC T 1A
UL T 1,25A
1286
1282
FOR FW36
IEC T 5A
UL T 6,3A
1289
REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL
POUR SON REMPLACEMENT S'ADRESSER AU REVENDEUR
5280
TRANSFORMER
VOLTAGE SELECTOR
1281
1550
37
N
L
FLOW DIRECTION
IONS
AGRAM

13	A	8
14	A	9
16	B	2
17	E	2
37	F	9
1253	D	2
1281	F	7
1282	E	9
1285	D	9
1286	E	9
1289	E	9
1290	F	9
1304	E	1
1494	A	9
1495	B	9
1496	B	9
1497	A	9
1498	B	9
1499	C	9
1550	C	8
1552	A	1
1554	A	3
1557	C	1
1558	A	6
1559	A	7
1560	B	8
1561	D	4
1700	A	6
1701	A	5
1703	C	5
1704	C	4
2250	F	2
2251	F	2
2252	E	2
2253	F	3
2254	F	3
2255	F	4
2256	F	4
2257	D	2
2258	D	2
2260	D	2
2261	D	2
2262	F	4
2263	D	2
2264	D	3
2265	D	3
2266	D	3
2267	D	4
2268	F	2
2269	F	4
2315	E	3
2316	E	4
2317	D	5
2318	D	5
2319	E	3
2320	E	4
2321	D	3
2322	D	4
2323	D	5
2324	D	5
2325	D	6
2326	D	6
2327	D	3
2328	D	4
2329	D	2
2330	D	3
2333	E	2
2334	E	3
2335	E	2
2336	E	4
2337	E	2
2338	E	3
2339	E	2
2340	E	4
2350	E	3
2351	C	7
2352	C	8
2353	C	8
2355	E	3
2356	E	4
2363	E	3
2364	E	4
2365	D	1
2366	F	1
2367	E	2
2368	E	3
2369	D	4
2370	E	4
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2502	C	2
2503	B	1
2504	C	2
2505	B	2
2506	C	2
2507	A	1
2508	A	2
2509	A	1
2510	A	1
2511	A	2
2512	A	2
2513	B	2
2514	C	2
2515	B	1
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2522	C	2
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2552	F	5
2553	F	5
2554	F	6
2555	E	6
2556	E	6
2557	E	6
2558	F	6
2559	E	5
2560	E	5
2561	E	6
2563	E	6
2564	F	6
2571	E	5
2572	A	7
2573	B	1
2574	A	2
2575	E	6
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2606	D	6
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2614	A	2
2615	A	7
2629	A	2
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2701	A	6
2702	B	5
2703	A	4
2704	A	5
2705	A	7
2706	A	5
2707	A	6
2708	B	6
2709	A	7
2710	A	6
2711	A	7
2712	B	6
2713	B	6
2714	B	6
2715	B	7
2716	B	6
2717	A	4
2719	B	5
2720	B	5
2721	B	5
2722	B	5
2723	A	4
2724	A	4
2725	A	4
2726	A	4
2727	C	5
2728	B	5
2729	C	6
2730	A	5
2731	A	5
2732	A	4
2733	D	5
2735	A	5
2736	B	5
2737	A	5
2738	B	5
2739	B	5
2740	C	5
2741	A	5
2742	A	5
2743	A	5
2745	A	5
2750	B	5
2751	A	5
2752	A	4
2753	C	4
2754	B	4
2755&	A	4
3251	F	3
3252	F	3
3254	F	3
3255	E	4
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3257	F	4
3258	F	4
3259	F	4
3260	F	4
3261	F	4
3262	F	4
3263	F	3
3264	D	1
3265	D	1
3266	D	3
3267	D	1
3268	D	4
3269	D	3
3270	D	4
3280	F	9
3315	D	5
3316	E	5
3317	E	3
3318	E	4
3319	E	2
3320	E	4
3321	E	2
3322	E	4
3323	D	3
3324	D	4
3325	D	1
3326	F	1
3327	C	7
3328	C	8
3350	E	4
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3502	C	2
3503	B	2
3504	C	2
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3534	A	3
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3536	A	7
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3538	C	1
3539	C	1
3541	A	3
3542	A	3
3543	C	3
3544	E	6
3549	A	2
3550	E	6
3551	E	6
3552	F	5
3553	F	5
3554	E	5
3555	F	5
3556	F	5
3557	F	6
3558	F	6
3559	F	7
3560	F	6
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3574	E	5
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3622	A	1
3700	A	6
3701	A	6
3703	A	6
3705	A	6
3706	B	5
3707	A	6
3708	B	5
3709	A	7
3710	A	6
3711	B	6
3712	A	6
3713	B	6
3714	B	6
3715	B	6
3716	A	7
3717	B	6
3718	B	7
3719	B	4
3720	B	6
3721	B	6
3722	B	5
3723	A	6
3724	B	6
3725	A	4
3726	B	6
3727	A	5
3728	B	6
3731	B	4
3732	B	7
3733	A	6
3734	A	5
3735	A	5
3736	B	4
3737	B	4
3738	A	4
3740	A	4
3741	A	4
3742	B	4
3744	B	4
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3746	C	7
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3750	C	6
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3752	C	6
3754	B	6
3755	B	6
3756	B	6
3758	A	4
3759	C	5
3760	C	6
3761	C	5
3765	C	6
3766	C	5
3767	C	4
3768	C	6
3769	C	6
3770	C	6
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3781	C	5
3782	B	4
3784	C	7
3785	B	4
3786	A	6
3787	A	6
3788	B	4
3789	C	4
3790	D	6
3791	C	6
3793	C	5
3794	C	6
3797	C	4
3798	B	4
3799	B	4
3800	B	5
3801	C	4
3803	B	4
3804	C	4
3805	B	4
3806	C	7
3807	B	5
3808	A	5
3809	A	6
3810	A	6
3811	A	5
3812	B	5
3813	A	5
3814	B	5
3815	A	5
3817	B	4
3818	A	4
5280	D	7
5281	F	9
5311	C	8
5312	C	8
5315	E	3
5316	E	4
5700	A	5
5701	A	4
6250	F	2
6251	D	2
6252	F	4
6253	F	4
6254	F	3
6255	D	2
6257	D	2
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6259	D	3
6260	D	3
6261	D	3
6262	F	1
6263	F	1
6264	D	2
6350	D	6
6351	F	3
6354	D	5
6355	D	5
6501	F	6
6502	F	6
6503	F	5
6504	E	5
6505	E	5
6510	A	3
6700	C	6
6701	A	4
6704	A	4
6706	B	4
6709	C	6
6710	B	5
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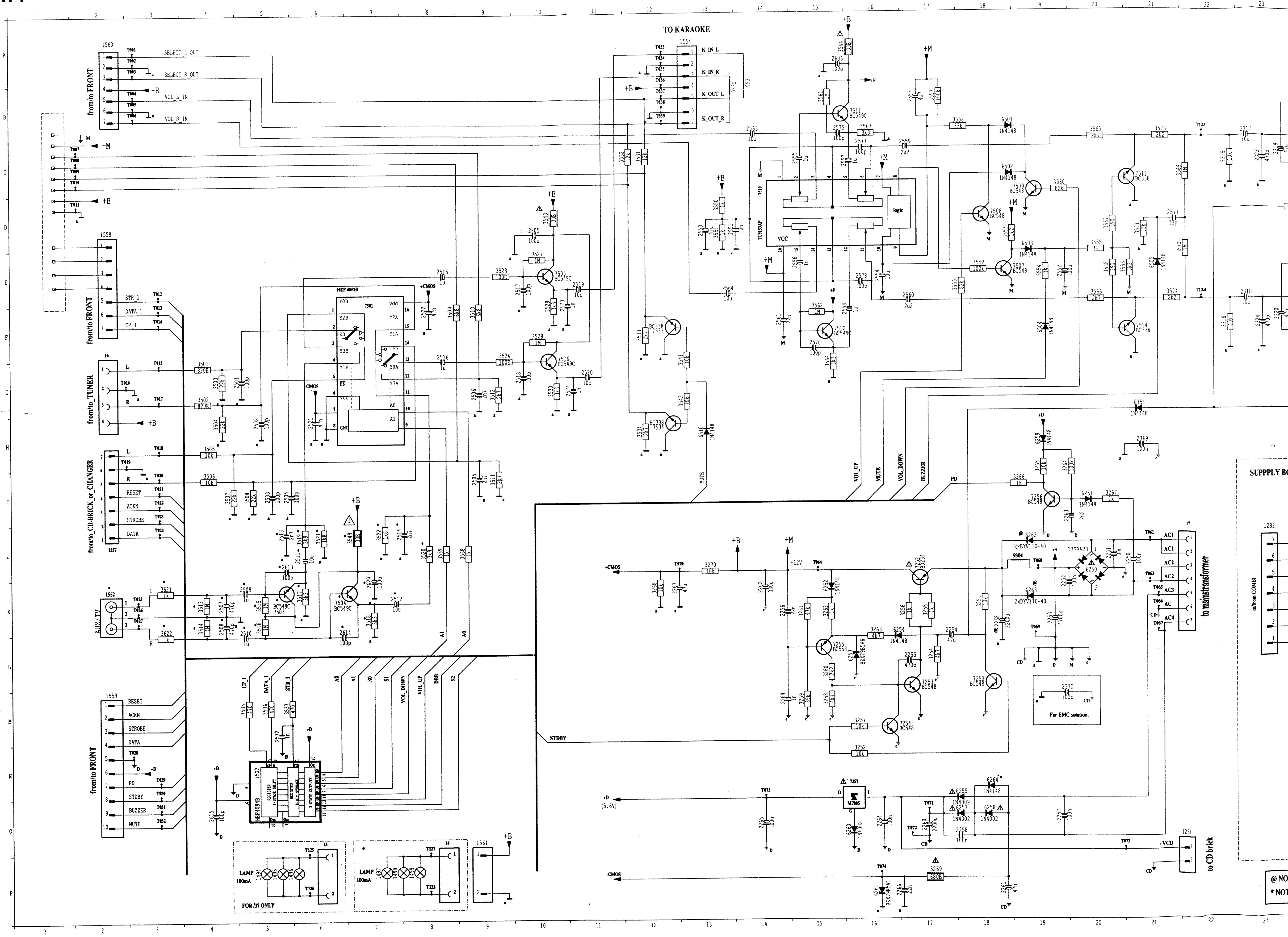
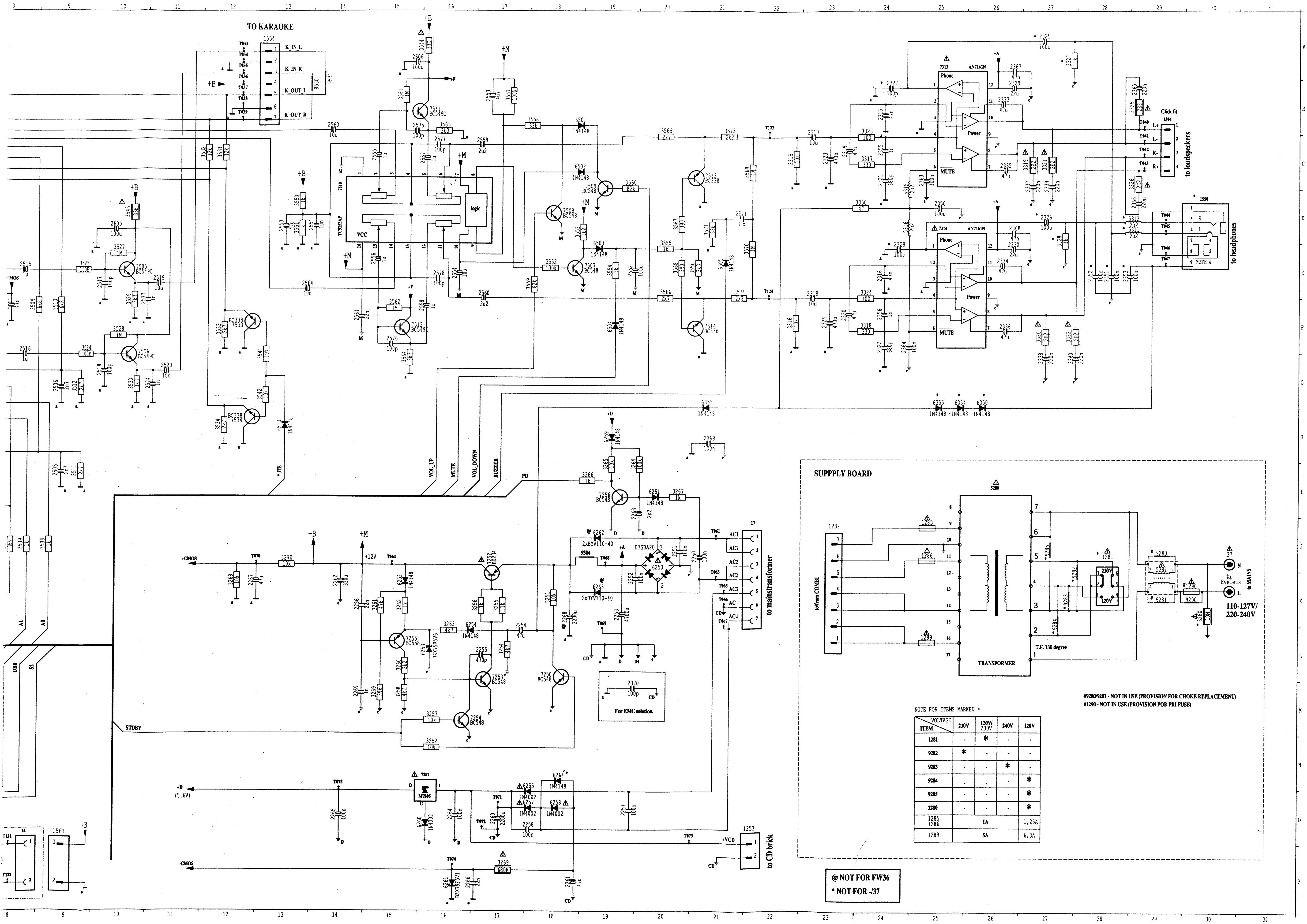
6719	C	5
6720	C	4
6721	C	5
6724	A	4
6728	C	4
6729	C	4
6730	C	4
6732	C	5
6734	B	6
6735	B	6
6736	A	4
6738	B	4
6739	A	4
6740	C	6
6741	C	5
7250	F	3
7252	F	4
7253	F	4
7254	F	3
7255	F	4
7256	D	1
7257	D	3
7313	E	2
7314	E	4
7501	C	2
7502	A	7
7503	A	2
7504	A	2
7505	B	2
7506	B	2
7507	F	5
7508	F	6
7509	F	6
7510	E	6
7511	E	6
7512	F	6
7513	F	5
7514	E	5
7533	A	3
7534	B	3
7701	B	4
7702	A	5
7703	A	4
7705	C	7
7706	C	6
7708	C	5
7709	D	5
7710	C	5
7711	C	5
7712	C	4
7716	A	4
7719	C	4
9280	F	9
9281	F	9
9282	F	7
9283	F	7
9284	F	8
9285	F	8
9286	F	8
9287	F	7
9288	F	8
9290	F	9
9300	E	2
9301	E	2
9302	F	2
9303	F	3
9304	F	3
9305	F	3
9306	E	3
9307	E	3
9308	F	2
9309	F	3
9310	F	3
9311	F	3
9312	D	2
9313	E	5
9314	F	4
9315	D	3
9316	D	4
9317	D	4
9318	D	1
9319	D	3
9320	E	5
9321	D	3
9322	D	3
9323	F	2
9324	C	2
9325	B	2
9326	C	3
9327	C	3
9328	C	3
9351	C	8
9352	D	6
9353	D	6
9354	D	6
9355	D	6
9356	D	6
9357	A	7
9358	A	7
9359	B	7
9360	B	7
9361	B	7
9362	A	7
9363	D	6
9364	C	3
9365	D	3
9366	D	4
9501	D	4
9503	B	3
9504	A	2
9506	B	3
9507	E	4
9508	B	3
9509	B	2
9510	B	3
9511	B	3
9512	C	2
9515	B	4
9516	F	5
9517	A	2
9518	A	2
9520	C	3
9522	D	3
9523	B	3
9526	B	3
9530	A	3
9531	A	3
9533	E	6
9534	E	6
9535	E	6
9536	E	5
9537	E	5
9539	E	6
9540	F	6
9541	F	5
9542	E	5
9544	E	6
9546	D	6
9547	D	6
9600	A	2
9601	A	3
9602	B	3
9603	B	3
9604	C	3
9605	C	3
9624	A	2
9700	A	6
9701	A	5
9702	A	4
9703	A	5
9705	B	5
9706	B	6
9707	B	7
9708	A	6
9709	B	6
9710	A	8
9711	A	6
9713	D	4
9715	D	4
9716	D	4
9717	B	4
9718	C	5
9719	C	5
9720	C	6
9723	C	4
9724	C	4
9725	C	5
9726	F	6
9727	D	4
9728	F	5
9729	B	3
9736	A	5
9902	A	5
9998	B	9
9999	B	9

COMBI CIRCUIT I


TO KARAOKE
from/to FRONT
from/to TUNER
from/to_CD-BRICK_or_CHANGER
AUX/TV
from/to FRONT
SELECT L OUT
SELECT R OUT
VOL L IN
VOL R IN
K IN L
K IN R
K OUT L
K OUT R
STR 1
DATA 1
CP 1
RESET
ACKN
STROBE
DATA
PD
STBY
BUZZER
MUTE
HEF 4052B
HEF4094B
TC9153AP
logic
VCC
VOL_UP
MUTE
VOL_DOWN
BUZZER
STDBY
+CMOS
-CMOS
+D
(5.6V)
to mainstransformer
to CD brick
SUPPPLY BO
For EMC solution.
FOR /37 ONLY
LAMP
100mA
M7805
BC549C
BC548
BC338
BC558
BD234
1N4148
1N4002
2xBYV110-40
D3SBA20
BZX79B5V6
BZX79F5V1
+B
+M
+D


TO KARAOKE
K_IN_L
K_IN_R
K_OUT_L
K_OUT_R
TC9155AP
logic
VCC
AN7161N
Phone
Power
MUTE
Click fit
to loudspeakers
to headphones
VOL_UP
MUTE
VOL_DOWN
BUZZER
PD
STDBY
+CMOS
-CMOS
D3SBA20
2xBYV110-40
to mainstransformer
to CD brick
For EMC solution.
SUPPPLY BOARD
TRANSFORMER
T.F. 130 degree
to/from COMBI
2x Eyelets
to MAINS
110-127V/ 220-240V
M7805

#9280/9281 - NOT IN USE (PROVISION FOR CHOKE REPLACEMENT)
#1290 - NOT IN USE (PROVISION FOR PRI FUSE)

NOTE FOR ITEMS MARKED *

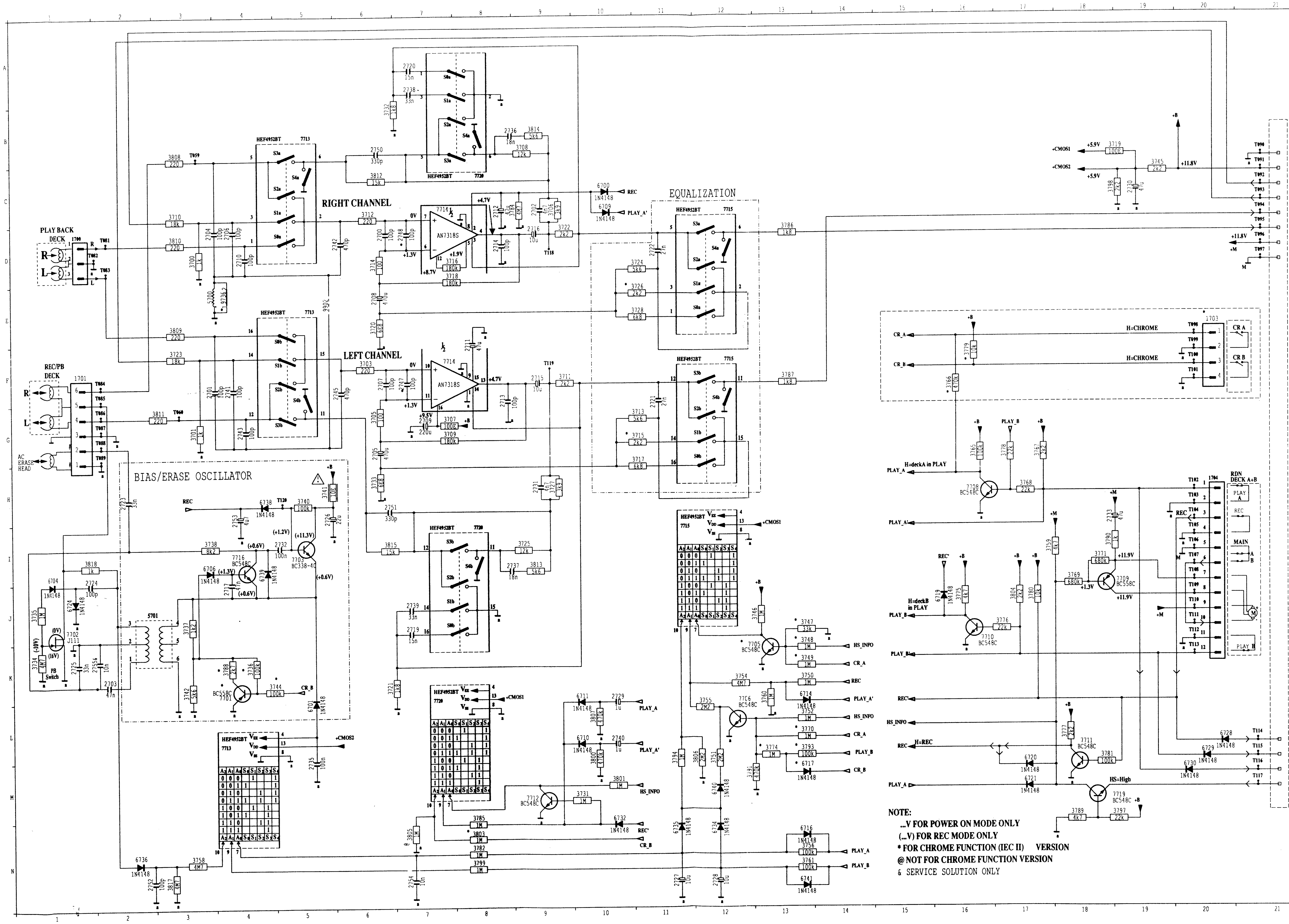
VOLTAGE / ITEM	230V	120V/ 230V	240V	120V
1281	.	*	.	.
9282	*	.	.	.
9283	.	.	*	.
9284	.	.	.	*
9285	.	.	.	*
3280	.	.	.	*
1285 1286	1A			1,25A
1289	5A			6,3A

@ NOT FOR FW36
* NOT FOR -/37

1253	O21
1281	J28
1282	J23
1285	J25
1286	J25
1289	L25
1290	K30
13	O 6
1304	B29
14	O 8
1494	P 5
1495	P 5
1496	P 5
1497	P 7
1498	P 7
1499	P 8
1550	D30
1552	K 2
1554	A13
1557	J 2
1558	D 2
1559	M 2
1560	A 2
1561	O 9
16	F 2
17	J22
2250	J21
2251	J20
2252	K19
2253	K19
2254	L17
2255	L17
2256	K14
2257	O19
2258	O18
2260	O17
2261	P18
2262	K14
2263	I19
2264	O16
2265	O14
2266	P16
2267	K12
2268	K18
2269	M14
2315	B24
2316	E24
2317	B23
2318	E23
2319	C23
2320	F23
2321	C24
2322	F24
2323	C23
2324	F23
2325	A27
2326	D27
2327	B24
2328	E24
2329	B26
2330	E26
2333	B26
2334	E26
2335	C26
2336	F26
2337	C27
2338	G27
2339	C27
2340	G27
2350	D25
2351	E28
2352	E28
2353	E28
2355	C24
2356	F24
2363	C25
2364	F24
2365	B29
2366	D29
2367	A26
2368	D26
2369	H21
2370	M19
2501	G 5
2502	H 5
2503	I 5
2504	I 5
2505	I 9
2506	G 9
2507	K 4
2508	K 4
2509	K 5
2510	K 5
2511	J 6
2512	K 7
2513	J 5
2514	J 7
2515	E 8
2516	F 8
2517	E10
2518	G10
2519	E11
2520	G11
2521	H 6
2522	F 8
2550	D13
2551	D13
2552	E19
2553	B17
2554	E16
2555	C15
2556	E15
2557	C16
2558	F16
2559	C17
2560	E17
2561	F14
2563	B14
2564	E13
2571	D21
2572	M 5
2573	F10
2574	G11
2575	B15
2576	F15
2577	C16
2578	E16
2605	D10
2606	A15
2613	J 5
2614	K 6
2615	O 4
2629	K 7
3251	K18
3252	N16
3254	L17
3255	K17
3256	K17
3257	M16
3258	M15
3259	M15
3260	L15
3261	K15
3262	K15
3263	L16
3264	I19
3265	I19
3266	I19
3267	I20
3268	K12
3269	P17
3270	J13
3280	K30
3315	C22
3316	F22
3317	C24
3318	F24
3319	C27
3320	F27
3321	C27
3322	F27
3323	B24
3324	E24
3325	B29
3326	C29
3327	A27
3328	D27
3350	D24
3501	G 4
3502	G 4
3503	G 4
3504	H 4
3505	H 4
3506	I 4
3507	I 4
3508	I 5
3509	F 8
3510	F 9
3511	I 9
3512	G 9
3513	K 4
3514	K 4
3515	K 5
3516	K 5
3517	K 6
3518	K 7
3519	J 6
3520	J 8
3521	J 6
3522	J 7
3523	E 9
3524	F 9
3527	E10
3528	F10
3529	F10
3530	G10
3531	C12
3532	C12
3533	F12
3534	H12
3535	M 5
3536	M 5
3537	M 5
3538	J 9
3539	J 8
3541	G13
3542	G13
3543	D10
3544	A15
3549	J 7
3550	D13
3551	D13
3552	E18
3553	D18
3554	E19
3555	E20
3556	E21
3557	B17
3558	B18
3559	E18
3560	C19
3561	B15
3562	F15
3563	B16
3564	G15
3565	B20
3566	E20
3567	D20
3568	E20
3569	C22
3570	E22
3571	D21
3573	B21
3574	E21
3621	K 3
3622	K 3
37	J30
5280	I26
5281	J29
5311	D29
5312	D29
5315	C24
5316	D24
6250	J20
6251	I20
6252	K15
6253	L16
6254	L16
6255	N18
6257	O18
6258	O18
6259	H19
6260	O16
6261	P16
6262	J19
6263	K19
6264	N18
6350	G26
6351	G21
6354	G25
6355	G25
6501	B18
6502	C18
6503	E19
6504	F19
6505	E21
6510	H13
7250	L18
7252	J17
7253	L17
7254	M16
7255	L15
7256	I19
7257	N16
7313	A25
7314	D25
7501	F 7
7502	N 5
7503	K 5
7504	K 6
7505	E10
7506	G10
7507	E19
7508	D18
7509	C19
7510	C14
7511	B16
7512	F15
7513	C21
7514	F21
7533	F12
7534	H12
9280	J29
9281	K29
9282	J28
9283	K27
9284	K27
9285	J27
9290	K30
9530	B13
9531	A14

COMBI CIRCUIT II

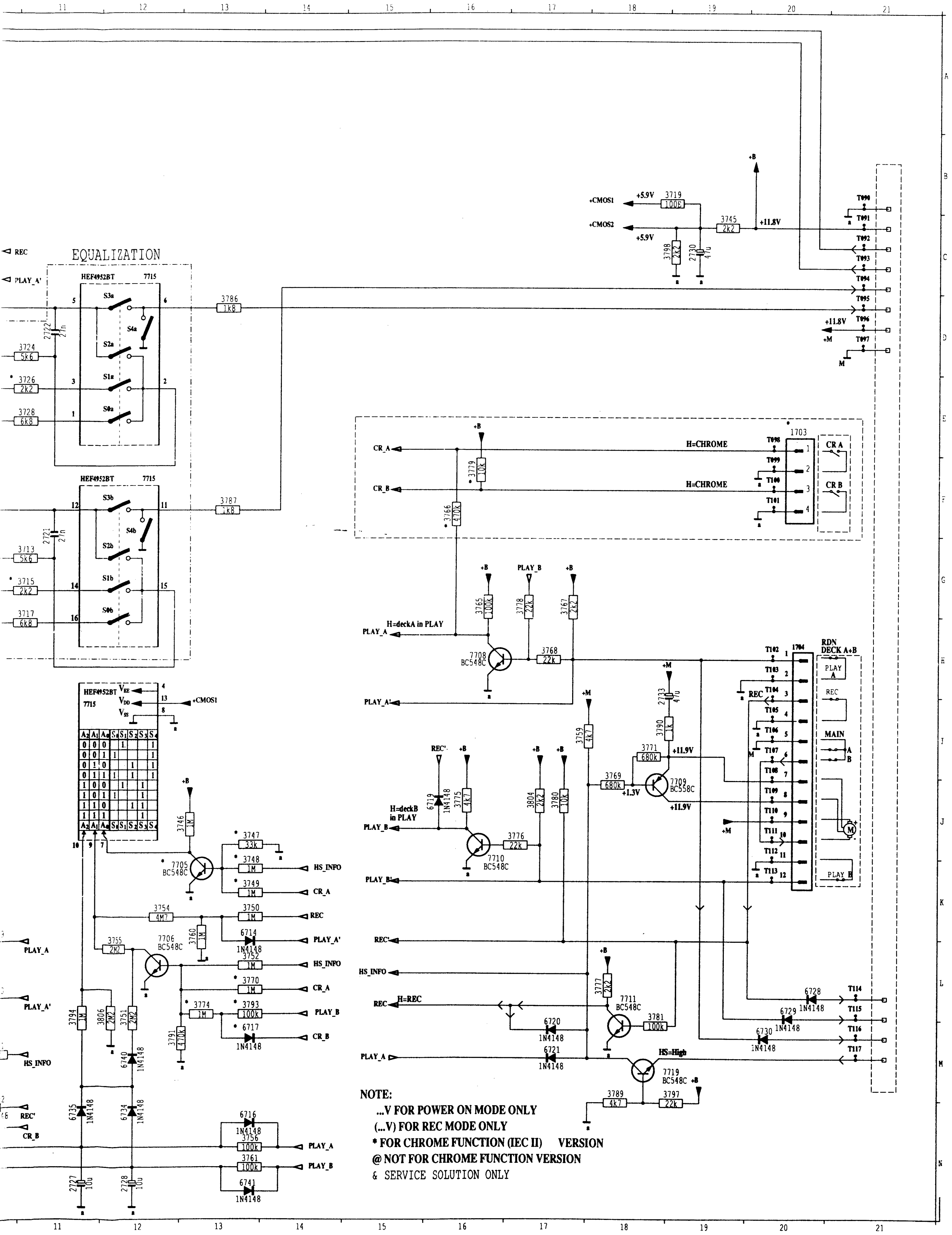
TRANSFORM


PLAY BACK DECK
REC/PB DECK
AC ERASE HEAD
RIGHT CHANNEL
LEFT CHANNEL
EQUALIZATION
BIAS/ERASE OSCILLATOR
HEF4952BT
AN7318S
H=CHROME
CR A
CR B
RDN DECK A+B
PLAY A
REC
MAIN
PLAY B
H=deckA in PLAY
H=deckB in PLAY
H=REC
HS=High
PB Switch
+CMOS1
+CMOS2
HS_INFO
PLAY_A
PLAY_B
CR_A
CR_B

NOTE:
...V FOR POWER ON MODE ONLY
(...V) FOR REC MODE ONLY
* FOR CHROME FUNCTION (IEC II) VERSION
@ NOT FOR CHROME FUNCTION VERSION
& SERVICE SOLUTION ONLY

1700	D 1
1701	F 1
1703	E20
1704	H20
2700	D 6
2701	F 3
2702	C 9
2703	K 2
2704	D 3
2705	G 6
2706	D 4
2707	F 6
2708	E 6
2709	G 7
2710	D 4
2711	F 8
2712	C 8
2713	F 8
2714	D 8
2715	F 9
2716	D 9
2717	J 4
2719	J 7
2720	A 7
2721	F11
2722	D11
2723	H 2
2724	I 1
2725	K 1
2726	H 5
2727	N11
2728	N12
2729	K10
2730	C19
2731	H 9
2732	I 5
2733	H18
2735	M 5
2736	B 8
2737	I 8
2738	A 7
2739	J 7
2740	L10
2741	F 4
2742	D 6
2743	G 4
2745	F 6
2747	F 7
2748	D 7
2750	B 6
2751	H 6
2752	N 2
2753	H 4
2754	N 7
2755&	K 2
3700	D 3
3701	G 3
3703	F 6
3705	G 6
3706	C 9
3707	G 7
3708	B 9
3709	G 7
3710	C 3
3711	F 9
3712	C 6
3713	G11
3714	D 6
3715	G11
3716	D 7
3717	G11
3718	D 7
3719	B19
3720	E 6
3721	K 6
3722	D 9
3723	F 3
3724	D11
3725	I 9
3726	E11
3727	H 9
3728	E11
3731	M10
3732	B 6
3733	H 6
3734	K 1
3735	J 1
3736	K 4
3737	J 3
3738	I 3
3740	H 5
3741	H 5
3742	K 3
3744	K 4
3745	C19
3746	J13
3747	J13
3748	K13
3749	K13
3750	K13
3751	L12
3752	L13
3754	K12
3755	L12
3756	N13
3758	N 3
3759	I17
3760	K13
3761	N13
3765	G16
3766	F16
3767	G17
3768	H17
3769	I18
3770	L13
3771	I18
3774	L13
3775	J16
3776	J17
3777	L18
3778	G17
3779	F16
3780	J17
3781	L18
3782	N 8
3784	C 9
3785	M 8
3786	D13
3787	F13
3788	K 4
3789	M18
3790	I18
3791	M12
3793	L13
3794	L11
3797	M19
3798	C18
3799	N 8
3800	L10
3801	M10
3803	N 8
3804	J17
3805	N 7
3806	L12
3807	L10
3808	B 3
3809	E 3
3810	D 3
3811	G 3
3812	C 6
3813	I 9
3814	B 9
3815	I 6
3817	N 3
3818	I 1
5700	E 3
5701	J 2
6700	C10
6701	L 5
6704	I 1
6706	I 3
6709	C10
6710	L10
6711	K10
6714	K13
6716	N13
6717	M13
6719	J16
6720	M17
6721	M17
6724	J 1
6728	L20
6729	L20
6730	M20
6732	N10
6734	N12
6735	N11
6736	N 2
6738	H 4
6739	I 4
6740	M12
6741	N13
7701	K 4
7702	J 1
7703	I 5
7705	K13
7706	L12
7708	H16
7709	J19
7710	K16
7711	L18
7712	M 9
7713	E 5
7713	B 5
7713	L 4
7714	C 7
7714	F 7
7715	I11
7715	F12
7715	C12
7716	I 4
7719	M18
7720	C 8
7720	I 8
7720	L 7
9736	E 4
9902	E 5

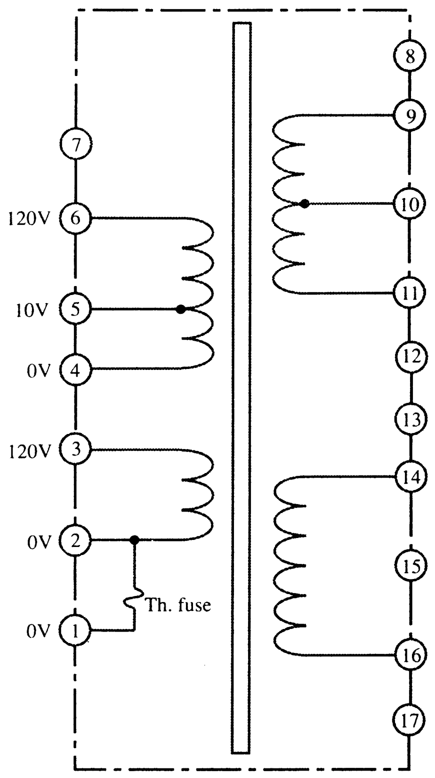
TAPE FUNCTION


EQUALIZATION
HEF4952BT
7715
REC
PLAY_A'
PLAY_A
PLAY_B
HS_INFO
CR_A
CR_B
+CMOS1
+CMOS2
+5.9V
+11.8V
+11.9V
+1.3V
H=CHROME
H=deckA in PLAY
H=deckB in PLAY
H=REC
HS=High
RDN DECK A+B
PLAY A
MAIN
PLAY B
BC548C
BC558C
1N4148

NOTE:
...V FOR POWER ON MODE ONLY
(...V) FOR REC MODE ONLY
* FOR CHROME FUNCTION (IEC II) VERSION
@ NOT FOR CHROME FUNCTION VERSION
& SERVICE SOLUTION ONLY

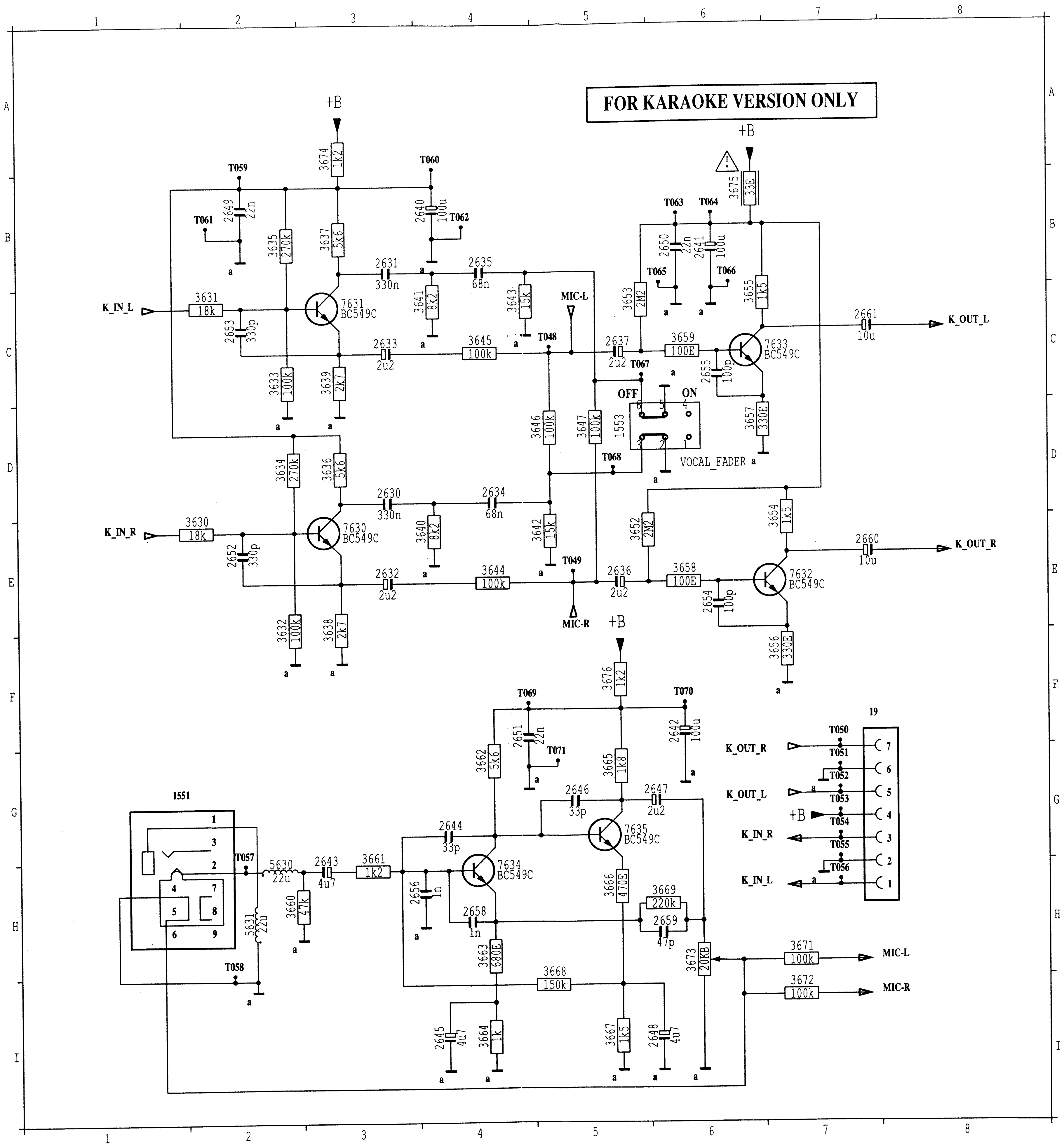
1700	D 1
1701	F 1
1703	E20
1704	H20
2700	D 6
2701	F 3
2702	C 9
2703	K 2
2704	D 3
2705	G 6
2706	D 4
2707	F 6
2708	E 6
2709	G 7
2710	D 4
2711	F 8
2712	C 8
2713	F 8
2714	D 8
2715	F 9
2716	D 9
2717	J 4
2719	J 7
2720	A 7
2721	F11
2722	D11
2723	H 2
2724	I 1
2725	K 1
2726	H 5
2727	N11
2728	N12
2729	K10
2730	C19
2731	H 9
2732	I 5
2733	H18
2735	M 5
2736	B 8
2737	I 8
2738	A 7
2739	J 7
2740	L10
2741	F 4
2742	D 6
2743	G 4
2745	F 6
2747	F 7
2748	D 7
2750	B 6
2751	H 6
2752	N 2
2753	H 4
2754	N 7
2755&	K 2
3700	D 3
3701	G 3
3703	F 6
3705	G 6
3706	C 9
3707	G 7
3708	B 9
3709	G 7
3710	C 3
3711	F 9
3712	C 6
3713	G11
3714	D 6
3715	G11
3716	D 7
3717	G11
3718	D 7
3719	B19
3720	E 6
3721	K 6
3722	D 9
3723	F 3
3724	E11
3725	I 9
3726	E11
3727	H 9
3728	E11
3731	M10
3732	B 6
3733	H 6
3734	K 1
3735	J 1
3736	K 4
3737	J 3
3738	I 3
3740	H 5
3741	H 5
3742	K 3
3744	K 4
3745	C19
3746	J13
3747	J13
3748	K13
3749	K13
3750	K13
3751	L12
3752	L13
3754	K12
3755	L12
3756	N13
3758	N 3
3759	I17
3760	K13
3761	N13
3765	G16
3766	F16
3767	G17
3768	H17
3769	I18
3770	L13
3771	I18
3774	L13
3775	J16
3776	J17
3777	L18
3778	G17
3779	F16
3780	J17
3781	L18
3782	N 8
3784	C 9
3785	M 8
3786	D13
3787	F13
3788	K 4
3789	M18
3790	I18
3791	M12
3793	L13
3794	L11
3797	M19
3798	C18
3799	N 8
3800	L10
3801	M10
3803	N 8
3804	J17
3805	N 7
3806	L12
3807	L10
3808	B 3
3809	E 3
3810	D 3
3811	G 3
3812	C 6
3813	I 9
3814	B 9
3815	I 6
3817	N 3
3818	I 1
5700	E 3
5701	J 2
6700	C10
6701	L 5
6704	I 1
6706	I 3
6709	C10
6710	L10
6711	K10
6714	K13
6716	N13
6717	M13
6719	J16
6720	M17
6721	M17
6724	J 1
6728	L20
6729	L20
6730	M20
6732	N10
6734	N12
6735	N11
6736	N 2
6738	H 4
6739	I 4
6740	M12
6741	N13
7701	K 4
7702	J 1
7703	I 5
7705	K13
7706	L12
7708	H16
7709	J19
7710	K16
7711	L18
7712	M 9
7713	E 5
7713	B 5
7713	L 4
7714	C 7
7714	F 7
7715	I11
7715	F12
7715	C12
7716	I 4
7719	M18
7720	C 8
7720	I 8
7720	L 7
9736	E 4
9902	E 5

TRANSFORMER WINDING

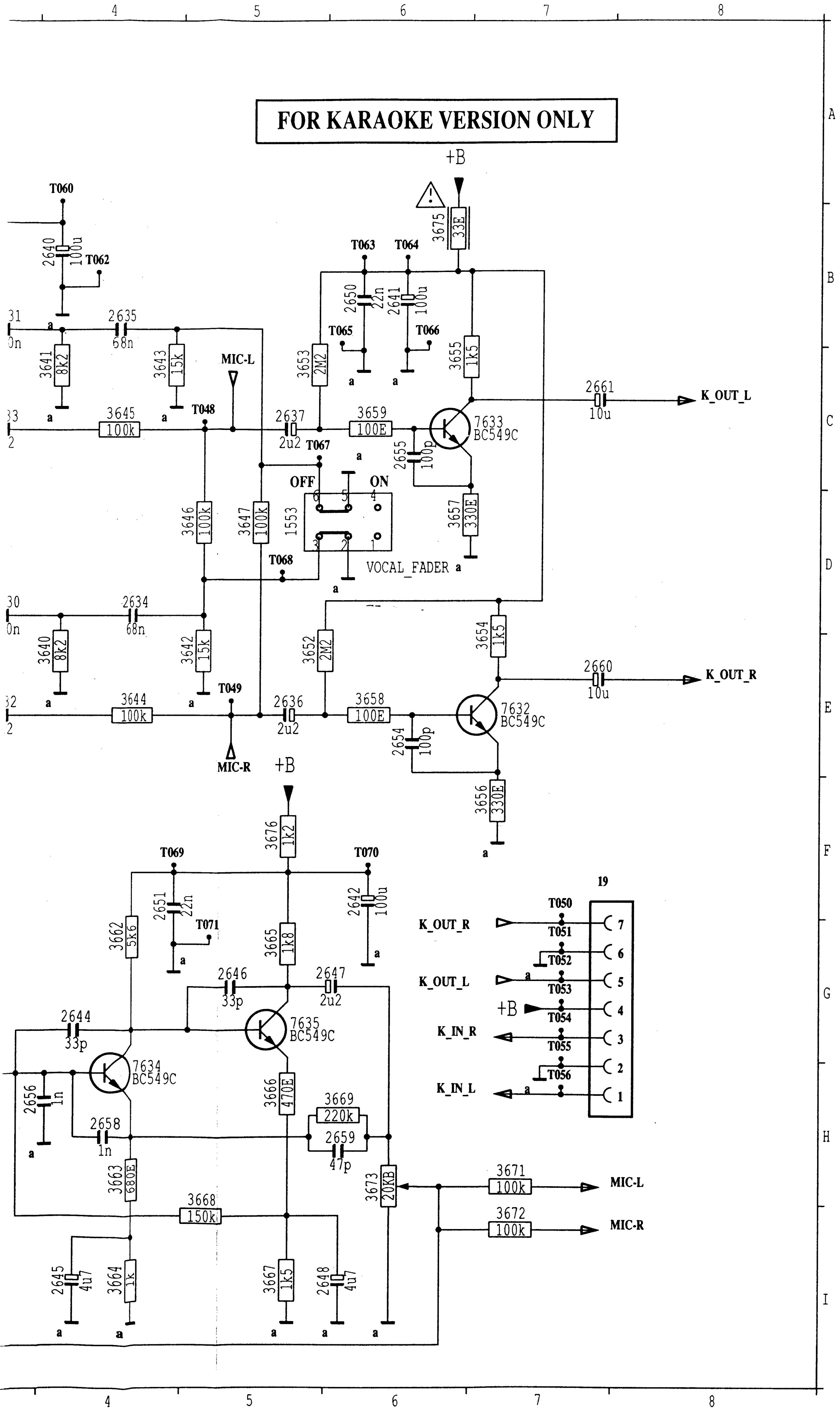

120V
10V
0V
120V
0V
0V
Th. fuse
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

4822 146 31352

KARAOKE CIRCUIT

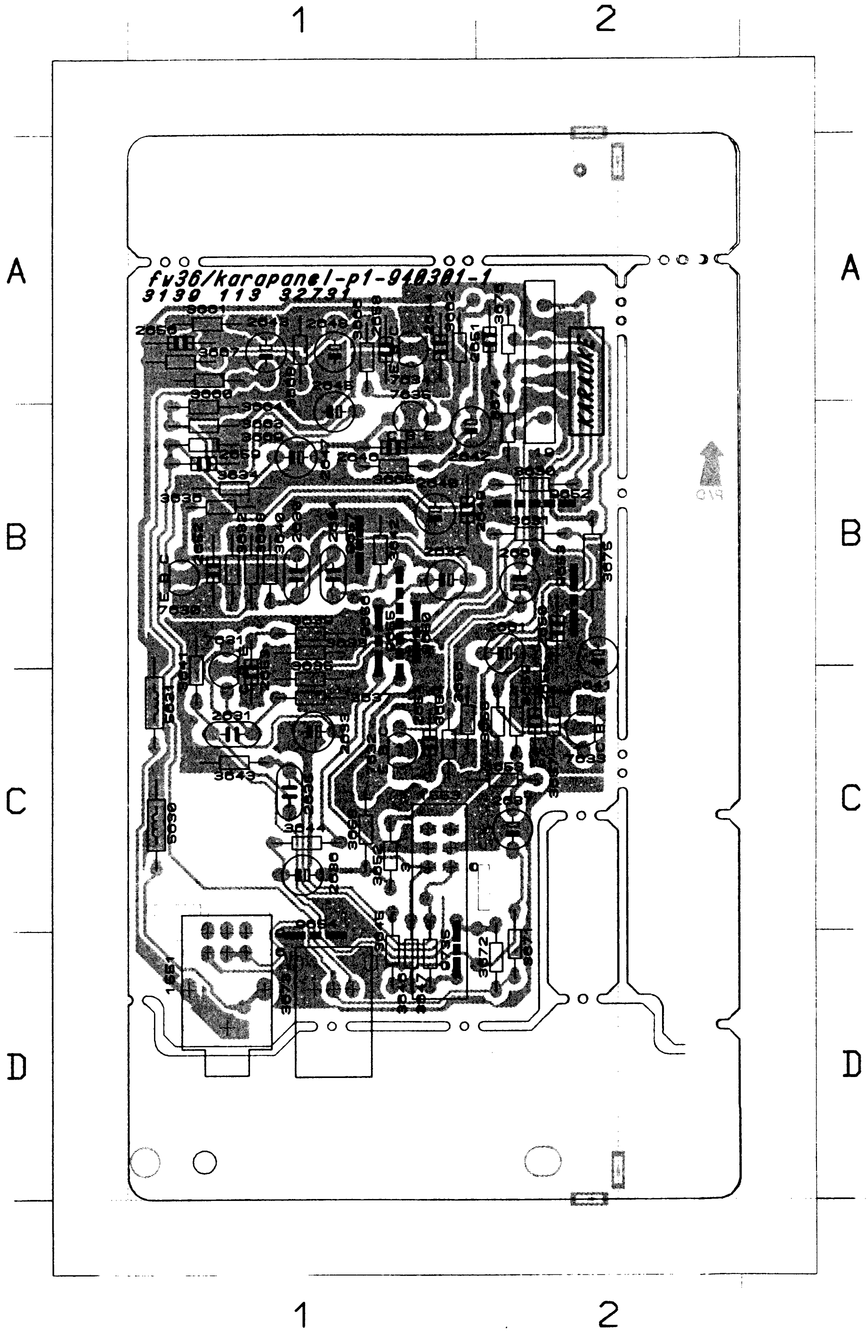

FOR KARAOKE VERSION ONLY
+B
K_IN_L
K_IN_R
K_OUT_L
K_OUT_R
MIC-L
MIC-R
7630 BC549C
7631 BC549C
7632 BC549C
7633 BC549C
7634 BC549C
7635 BC549C
3674 1k2
3675 33E
3676 1k2
3631 18k
3630 18k
2653 330p
2652 330p
3635 270k
3634 270k
3637 5k6
3636 5k6
3633 100k
3632 100k
3639 2k7
3638 2k7
2631 330n
2630 330n
2635 68n
2634 68n
3641 8k2
3640 8k2
3643 15k
3642 15k
2633 2u2
2632 2u2
3645 100k
3644 100k
3646 100k
3647 100k
2640 100u
2649 22n
2650 22n
2641 100u
3653 2M2
3652 2M2
2637 2u2
2636 2u2
3659 100E
3658 100E
2655 100p
2654 100p
3655 1k5
3654 1k5
3657 330E
3656 330E
2661 10u
2660 10u
1553
OFF
ON
VOCAL_FADER
19
T048
T049
T050
T051
T052
T053
T054
T055
T056
T057
T058
T059
T060
T061
T062
T063
T064
T065
T066
T067
T068
T069
T070
T071
1551
5630 22u
5631 22u
2643 4u7
3660 47k
3661 1k2
2656 1n
2644 33p
3662 5k6
2651 22n
3665 1k8
2642 100u
2646 33p
2647 2u2
3666 470E
3669 220k
2659 47p
2658 1n
3663 680E
3668 150k
3673 20KB
3671 100k
3672 100k
2645 4u7
3664 1k
3667 1k5
2648 4u7
a
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8

1551	G	1
1553	D	5
19	F	7
2630	D	3
2631	B	3
2632	E	3
2633	C	3
2634	D	4
2635	B	4
2636	E	5
2637	C	5
2640	B	4
2641	B	6
2642	F	6
2643	H	3
2644	G	4
2645	I	4
2646	G	5
2647	G	6
2648	I	6
2649	B	2
2650	B	6
2651	F	4
2652	E	2
2653	C	2
2654	E	6
2655	C	6
2656	H	3
2658	H	4
2659	H	6
2660	E	7
2661	C	7
3630	E	2
3631	C	2
3632	E	2
3633	C	2
3634	D	2
3635	B	2
3636	D	3
3637	B	3
3638	E	3
3639	C	3
3640	E	4
3641	C	4
3642	E	5
3643	C	4
3644	E	4
3645	C	4
3646	D	5
3647	D	5
3652	E	5
3653	C	5
3654	E	7
3655	C	6
3656	F	7
3657	D	6
3658	E	6
3659	C	6
3660	H	2
3661	G	3
3662	G	4
3663	H	4
3664	I	4
3665	G	5
3666	H	5
3667	I	5
3668	H	5
3669	H	6
3671	H	7
3672	I	7
3673	H	6
3674	A	3
3675	B	6
3676	F	5
5630	H	2
5631	H	2
7630	E	3
7631	C	3
7632	E	7
7633	C	7
7634	H	4
7635	G	5


FOR KARAOKE VERSION ONLY
+B
T060
2640 100u
T062
T063
T064
2650 22n
2641 100u
T065
T066
3675 33E
2635 68n
3641 8K2
3643 15k
MIC-L
3653 2M2
3655 1k5
2661 10u
K_OUT_L
3645 100k
T048
2637 2u2
T067
3659 100E
7633 BC549C
2655 100p
OFF
ON
1553
VOCAL_FADER
3646 100k
3647 100k
3657 330E
T068
2634 68n
3640 8K2
3642 15k
3652 2M2
3654 1k5
2660 10u
K_OUT_R
3644 100k
T049
2636 2u2
3658 100E
7632 BC549C
2654 100p
MIC-R
3656 330E
3676 1k2
T069
T070
2651 22n
T071
2642 100u
3662 5k6
3665 1k8
2646 33p
2647 2u2
7635 BC549C
2644 33p
7634 BC549C
2656 1n
2658 1n
3666 470E
3669 220k
2659 47p
3663 680E
3668 150k
3673 20KB
3671 100k
3672 100k
MIC-L
MIC-R
2645 4u7
3664 1k
3667 1k5
2648 4u7
19
K_OUT_R
K_OUT_L
+B
K_IN_R
K_IN_L
T050
T051
T052
T053
T054
T055
T056
4
5
6
7
8
A
B
C
D
E
F
G
H
I

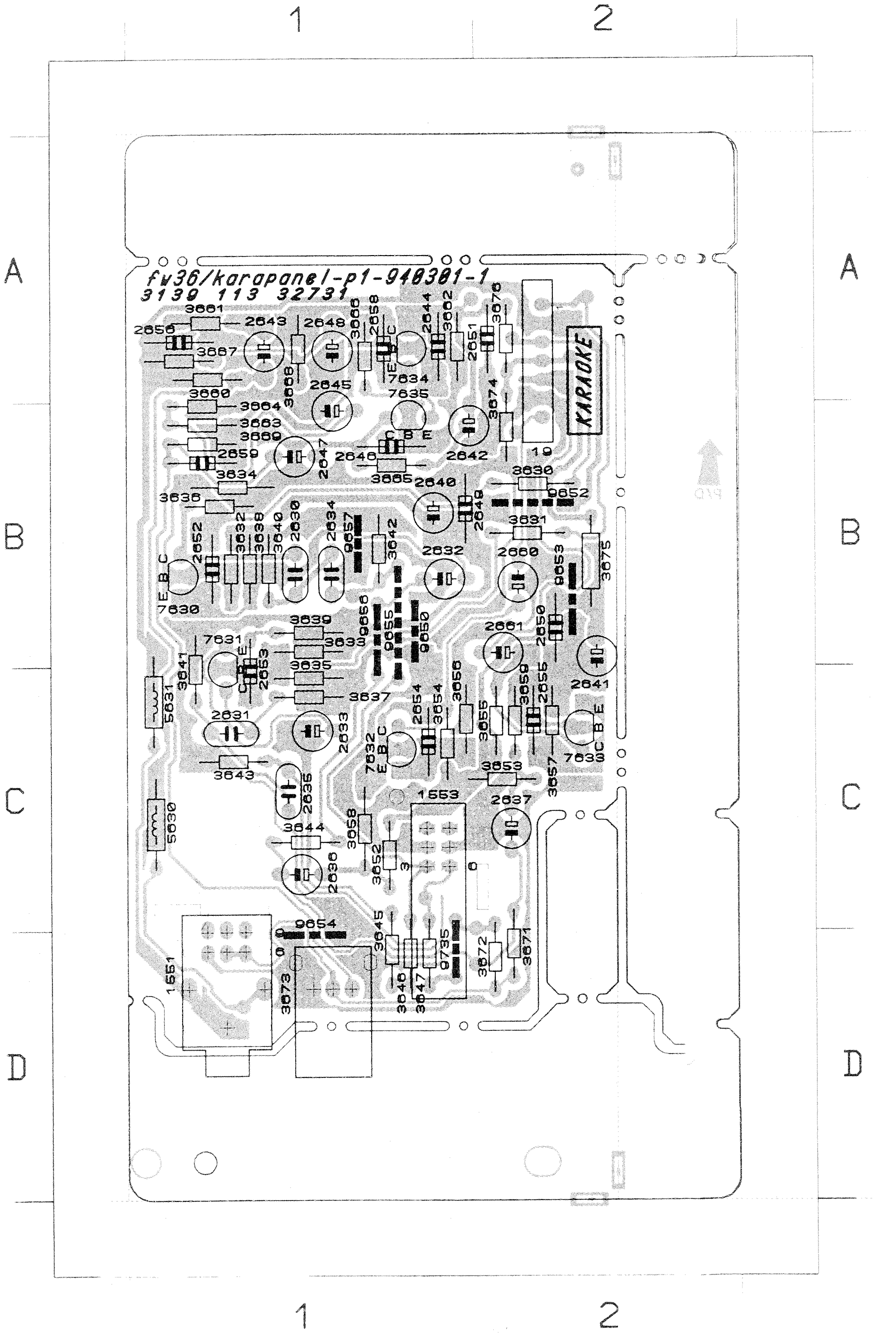
1551	G	1
1553	D	5
19	F	7
2630	D	3
2631	B	3
2632	E	3
2633	C	3
2634	D	4
2635	B	4
2636	E	5
2637	C	5
2640	B	4
2641	B	6
2642	F	6
2643	H	3
2644	G	4
2645	I	4
2646	G	5
2647	G	6
2648	I	6
2649	B	2
2650	B	6
2651	F	4
2652	E	2
2653	C	2
2654	E	6
2655	C	6
2656	H	3
2658	H	4
2659	H	6
2660	E	7
2661	C	7
3630	E	2
3631	C	2
3632	E	2
3633	C	2
3634	D	2
3635	B	2
3636	D	3
3637	B	3
3638	E	3
3639	C	3
3640	E	4
3641	C	4
3642	E	5
3643	C	4
3644	E	4
3645	C	4
3646	D	5
3647	D	5
3652	E	5
3653	C	5
3654	E	7
3655	C	6
3656	F	7
3657	D	6
3658	E	6
3659	C	6
3660	H	2
3661	G	3
3662	G	4
3663	H	4
3664	I	4
3665	G	5
3666	H	5
3667	I	5
3668	H	5
3669	H	6
3671	H	7
3672	I	7
3673	H	6
3674	A	3
3675	B	6
3676	F	5
5630	H	2
5631	H	2
7630	E	3
7631	C	3
7632	E	7
7633	C	7
7634	H	4
7635	G	5

KARAOKE LAYOUT


1
2
A
B
C
D
fv36/karapanel-p1-940301-1
3139 113 32731
1551

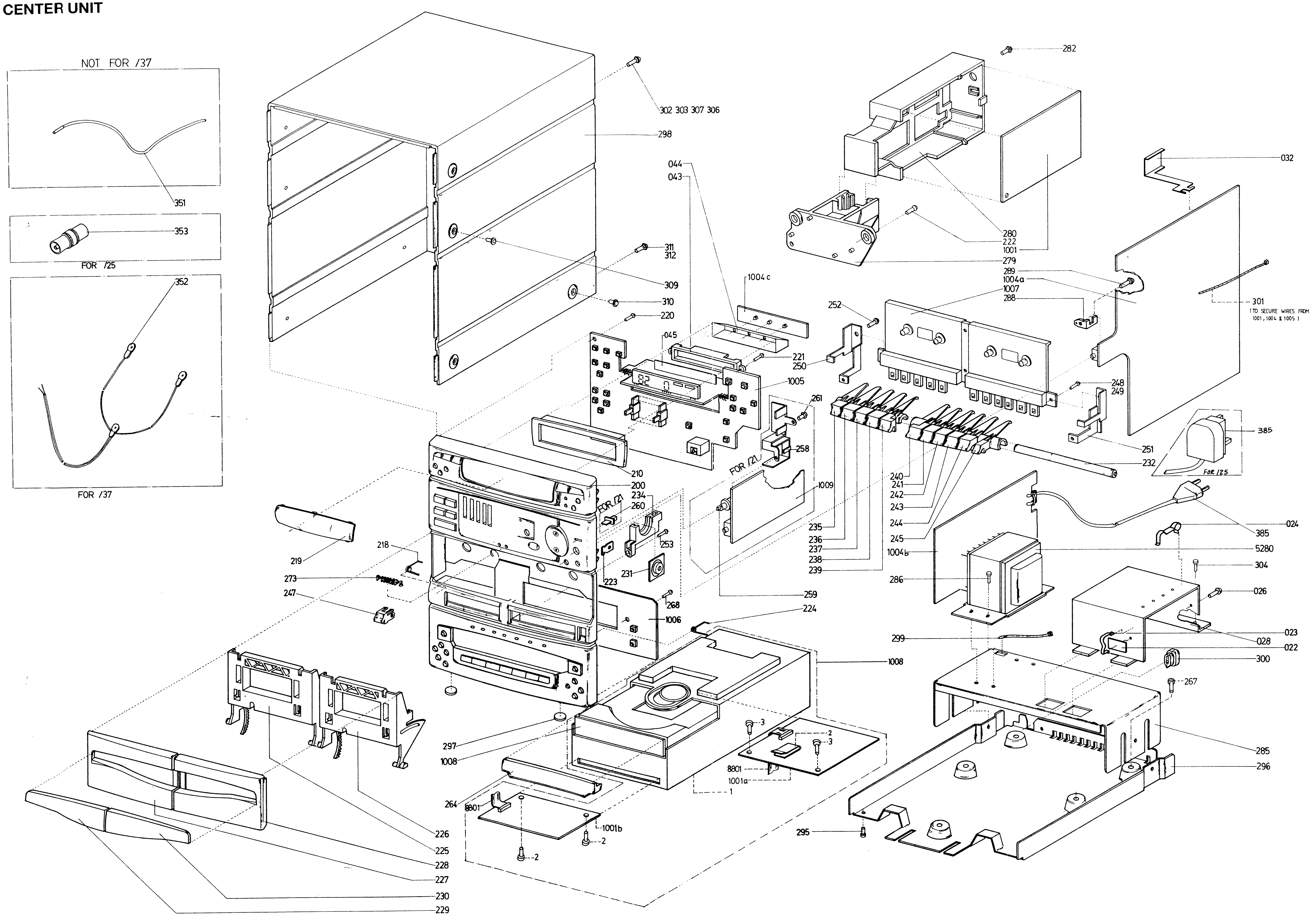
19	A	2	3660	A	1
1551	D	1	3661	A	1
1553	C	1	3662	A	1
2630	B	1	3663	B	1
2631	C	1	3664	B	1
2632	B	1	3665	B	1
2633	C	1	3666	A	1
2634	B	1	3667	A	1
2635	C	1	3668	A	1
2636	C	1	3669	B	1
2637	C	2	3671	D	2
2640	B	1	3672	D	2
2641	B	2	3673	D	1
2642	B	1	3674	B	2
2643	A	1	3675	B	2
2644	A	1	3676	A	2
2645	B	1	5630	C	1
2646	B	1	5631	C	1
2647	B	1	7630	B	1
2648	A	1	7631	C	1
2649	B	1	7632	C	1
2650	B	2	7633	C	2
2651	A	2	7634	A	1
2652	B	1	7635	B	1
2653	C	1	9650	B	1
2654	C	1	9652	B	2
2655	C	2	9653	B	2
2656	A	1	9654	D	1
2658	A	1	9655	B	1
2659	B	1	9656	B	1
2660	B	2	9657	B	1
2661	B	2	9735	D	1
3630	B	2			
3631	B	2			
3632	B	1			
3633	B	1			
3634	B	1			
3635	C	1			
3636	B	1			
3637	C	1			
3638	B	1			
3639	B	1			
3640	B	1			
3641	C	1			
3642	B	1			
3643	C	1			
3644	C	1			
3645	D	1			
3646	D	1			
3647	D	1			
3652	C	1			
3653	C	2			
3654	C	1			
3655	C	2			
3656	C	1			
3657	C	2			
3658	C	1			
3659	C	2			

KARAOKE LAYOUT


1
2
A
B
C
D
fw36/karapanel-p1-940301-1
3139 113 32731
KARAOKE
19
1551
1553
7630
7631
7632
7633
7634
7635
5630
5631

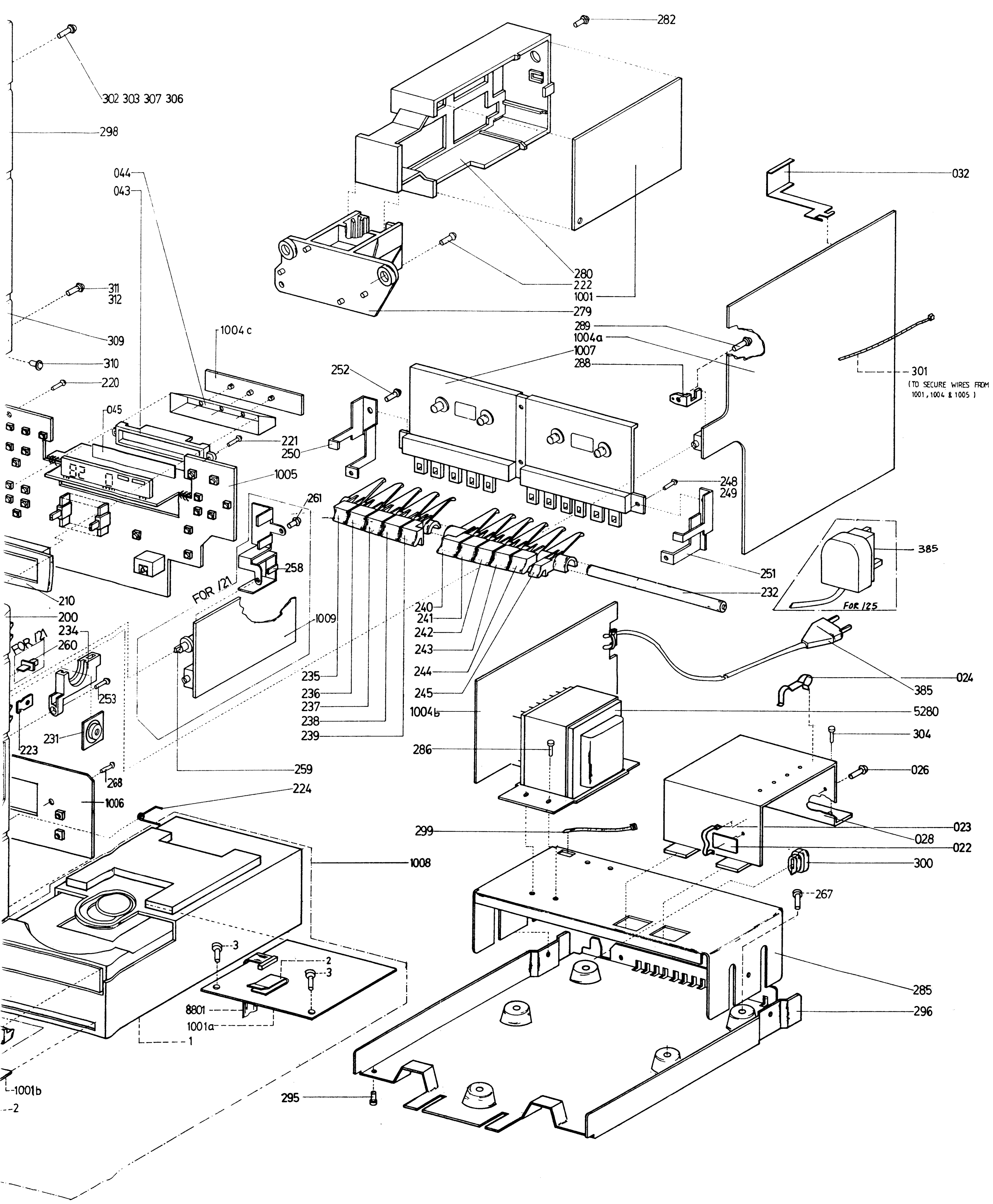
19	A	2
1551	D	1
1553	C	1
2630	B	1
2631	C	1
2632	B	1
2633	C	1
2634	B	1
2635	C	1
2636	C	1
2637	C	2
2640	B	1
2641	B	2
2642	B	1
2643	A	1
2644	A	1
2645	B	1
2646	B	1
2647	B	1
2648	A	1
2649	B	1
2650	B	2
2651	A	2
2652	B	1
2653	C	1
2654	C	1
2655	C	2
2656	A	1
2658	A	1
2659	B	1
2660	B	2
2661	B	2
3630	B	2
3631	B	2
3632	B	1
3633	B	1
3634	B	1
3635	C	1
3636	B	1
3637	C	1
3638	B	1
3639	B	1
3640	B	1
3641	C	1
3642	B	1
3643	C	1
3644	C	1
3645	D	1
3646	D	1
3647	D	1
3652	C	1
3653	C	2
3654	C	1
3655	C	2
3656	C	1
3657	C	2
3658	C	1
3659	C	2
3660	A	1
3661	A	1
3662	A	1
3663	B	1
3664	B	1
3665	B	1
3666	A	1
3667	A	1
3668	A	1
3669	B	1
3671	D	2
3672	D	2
3673	D	1
3674	B	2
3675	B	2
3676	A	2
5630	C	1
5631	C	1
7630	B	1
7631	C	1
7632	C	1
7633	C	2
7634	A	1
7635	B	1
9650	B	1
9652	B	2
9653	B	2
9654	D	1
9655	B	1
9656	B	1
9657	B	1
9735	D	1

CENTER UNIT


NOT FOR /37
351
353
FOR /25
352
FOR /37
302 303 307 306
298
311
312
309
310
220
044
043
045
1004 c
221
250
1005
252
261
258
FOR /21
210
200
FOR /21
234
260
253
231
223
268
1006
219
218
273
247
259
224
1009
282
032
280
222
1001
279
289
1004a
1007
288
301
(TO SECURE WIRES FROM 1001, 1004 & 1005)
248
249
251
232
385
FOR /25
240
241
242
243
244
245
235
236
237
238
239
1004b
385
024
5280
304
286
026
023
028
022
300
299
267
1008
285
296
295
297
1008
264
8801
1001b
2
2
3
2
3
8801
1001a
1
226
225
228
227
230
229

SCREWS LIST

026	D2.9 x 13
220	D3 x 10
221	D3 x 10
222	D3 x 10
248	D3 x 10
249	D3 x 10
252	M3 x 6
253	M3 x 6
261	D3 x 10
267	M3 x 6
268	D3 x 8
281	D3 x 10
282	D3 x 10
286	M3 x 10
289	D3 x 8
295	M3 x 6
302	D3 x 10
303	D3 x 10
304	M3 x 6
306	D3 x 10
307	D3 x 10
309	M3 x 6
310	M3 x 6
311	M3 x 6
312	M3 x 6


282
302 303 307 306
298
044
043
032
280
222
1001
279
289
1004a
1007
288
1004 c
311
312
309
310
220
252
301
(TO SECURE WIRES FROM 1001, 1004 & 1005)
045
221
250
1005
261
248
249
385
258
251
232
FOR /21
FOR /25
210
200
234
260
FOR /21
1009
240
241
242
243
244
245
1004b
235
236
237
238
239
024
385
5280
304
253
223
231
286
026
268
259
224
1006
299
023
028
022
1008
300
267
3
2
3
8801
1001a
1
285
296
1001b
2
295

SCREWS LIST - MAIN UNIT

026	D2.9 x 13
220	D3 x 10
221	D3 x 10
222	D3 x 10
248	D3 x 10
249	D3 x 10
252	M3 x 6
253	M3 x 6
261	D3 x 10
267	M3 x 6
268	D3 x 8
281	D3 x 10
282	D3 x 10
286	M3 x 10
289	D3 x 8
295	M3 x 6
302	D3 x 10
303	D3 x 10
304	M3 x 6
306	D3 x 10
307	D3 x 10
309	M3 x 6
310	M3 x 6
311	M3 x 6
312	M3 x 6

MECHANICAL AND ACCESSORY PARTS - SET EXPLODED VIEW

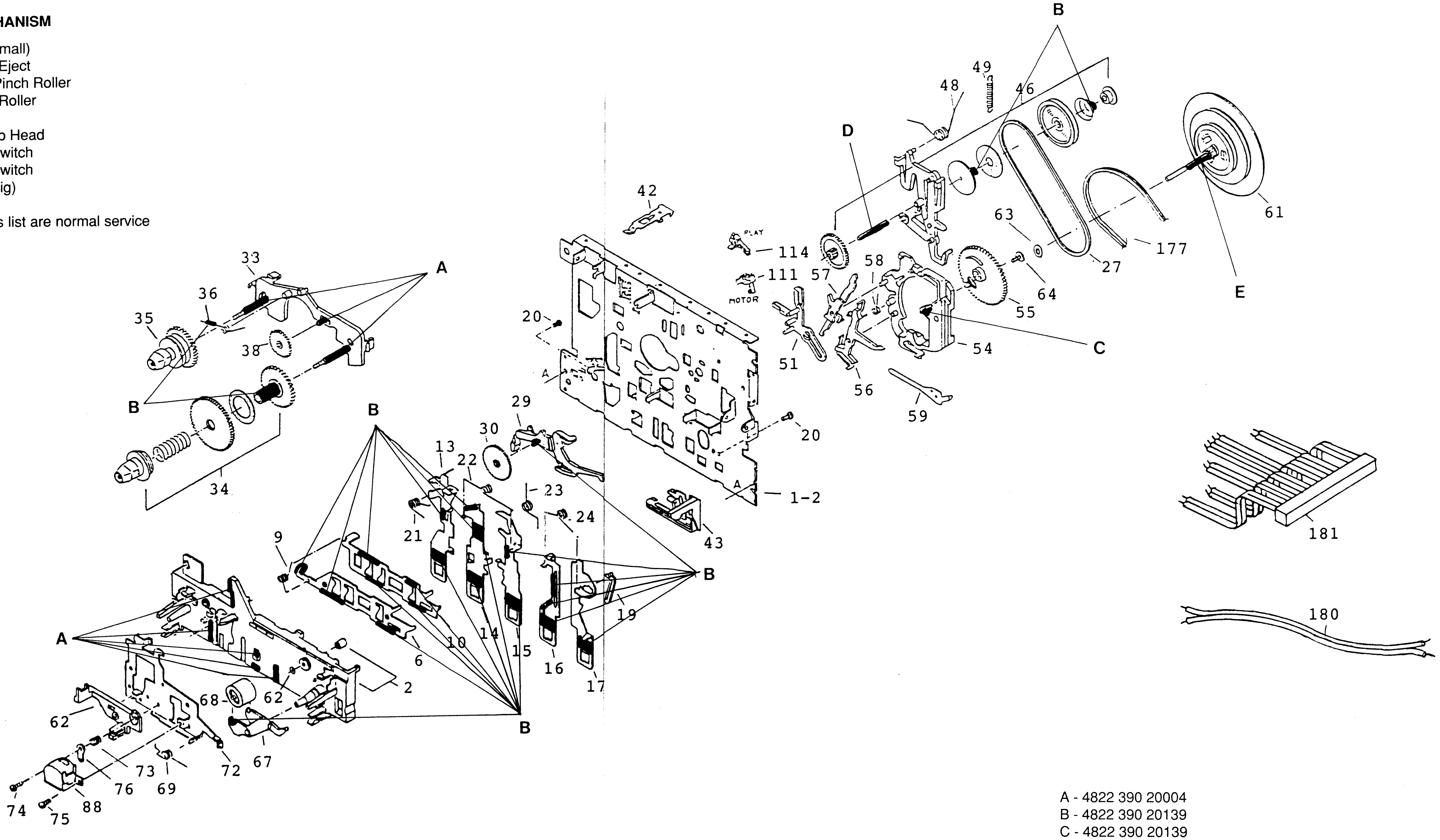
023	4822 255 40128	Clip 56353
024	5322 255 40397	Spring Clip 56379
200	4822 426 51737	Cabinet front assy for /21/30
200	4822 426 51738	Cabinet front assy for /20/22/25
200	4822 426 51736	Cabinet front assy for /37
218	4822 492 42708	Spring door cass L
219	4822 450 62195	Window feature for /37
219	4822 450 62187	Window feature
224	4822 492 42698	Spring door cass R
225	4822 443 64084	Door cassette L
226	4822 443 64085	Door cassette R
227	4822 443 64086	Cover cass door L
227	4822 443 64103	Cover cass door L for /37
228	4822 443 64087	Cover cass door R
228	4822 443 64104	Cover cass door R for /37
229	4822 450 62185	Window cover L
230	4822 450 62186	Window cover R
231	4822 529 10278	Damper assembly
235	4822 410 63036	Button deck 1-play
236	4822 410 63037	Button deck 1-rewind
237	4822 410 63038	Button deck 1-f forward
238	4822 410 63039	Button deck 1-stop
239	4822 410 63041	Button deck 1-pause
240	4822 410 63042	Button deck 2-record
241	4822 410 63043	Button deck 2-play
242	4822 410 63044	Button deck 2-rewind
243	4822 410 63045	Button deck 2-f forward
244	4822 410 63046	Button deck 2-stop
245	4822 410 63047	Button deck 2-pause
247	4822 466 93335	Button spacer
259	4822 413 41841	Knob karaoke for /21/30
260	4822 413 41842	Knob vocal cancel for /21/30
264	4822 444 60982	Cover CDC door
273	4822 459 11086	Badge PHILIPS not for /37
297	4822 462 40683	Plate foot
298	4822 426 20254	Cabinet rear for /21
298	4822 426 20255	Cabinet rear for /37
298	4822 426 20253	Cabinet rear for /20/22/25/30
300	4822 532 60948	Bush mains
350	4822 445 10399	Loudspeaker box assy
350	4822 445 10401	Loudspeaker box assy for /37
351	4822 303 50063	FM aerial (execpt /37)
352	4822 320 11094	FM antenna wire for /37
353	4822 263 21071	Adaptor FEM/FEM for /25
356	4822 218 10534	Remote control RH6050/00
385	4822 321 10853	Mains cord IEC for /20/21/22
385	4822 321 10906	Mains cord UL for /37
385	4822 321 10941	Mains cord UK for /25
385	4822 321 10979	Mains cord Aust for /30
387	4822 736 53862	IFU - USA
387	4822 736 22025	IFU - Overseas
387	4822 736 22024	IFU - Europe
1001-1	4822 255 40993	Heat sink clip
1007	4822 691 20909	Tape mech YSW47

PLAYBACK MECHANISM (A MECHA)

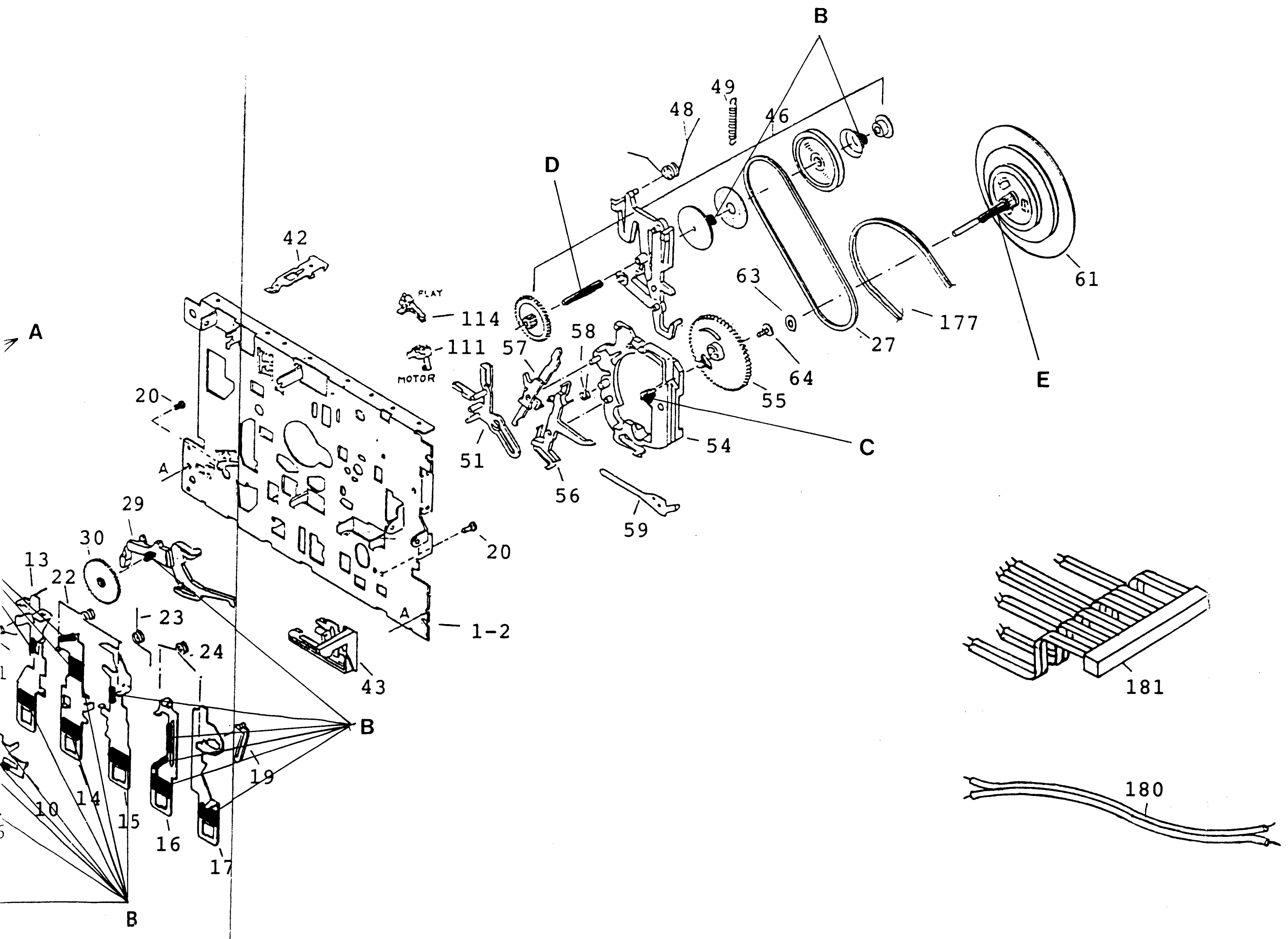
MECHANICAL PARTS - TAPE MECHANISM

27	4822 358 31231	Belt (small)
43	4822 403 30811	Lever Eject
67	4822 402 61418	Arm, Pinch Roller
68	4822 528 70785	Pinch Roller
88	4822 249 10425	Rec/Pb Head
111	4822 278 90752	Leaf Switch
114	4822 278 90751	Leaf Switch
177	4822 358 31292	Belt (big)

Note: Only the parts mentioned in this list are normal service spare parts.

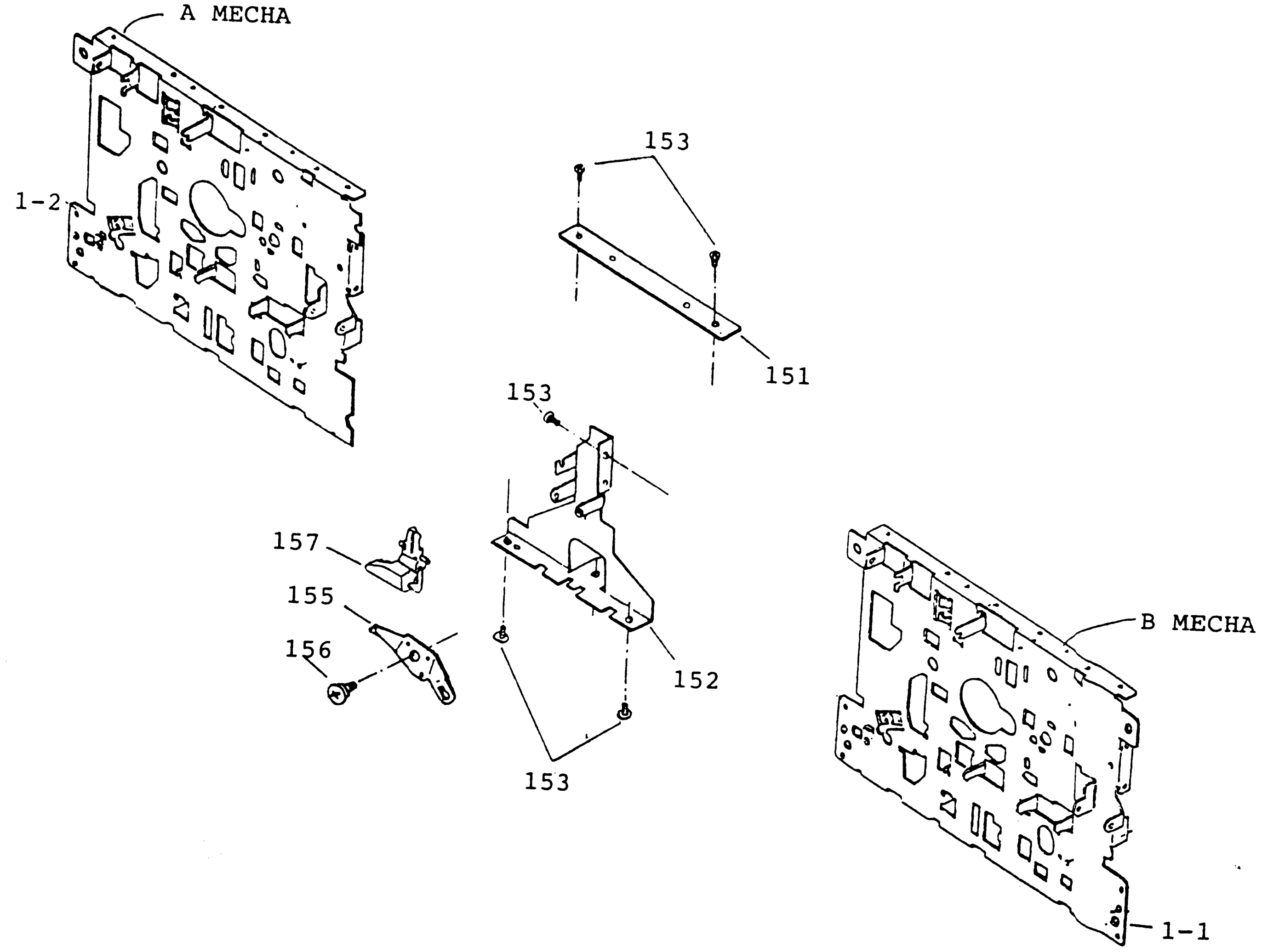

B
49
48
46
D
42
PLAY
114
111
MOTOR
57
58
63
27
177
61
E
64
55
54
C
51
56
59
20
33
A
36
35
38
B
B
29
30
13
22
23
24
21
1-2
43
34
9
B
19
A
10
14
15
16
17
6
2
68
62
62
67
72
73
69
76
88
74
75
B
181
180

A - 4822 390 20004
B - 4822 390 20139
C - 4822 390 20139
D - 5322 390 10096
E - 5322 390 10096
F - GLUE


B
49
48
46
D
42
PLAY
114
111
MOTOR
63
177
61
27
A
58
57
64
55
E
20
54
C
51
56
59
29
30
13
22
23
24
20
A
1-2
43
B
19
10
14
15
16
17
B
181
180

A - 4822 390 20004
B - 4822 390 20139
C - 4822 390 20139
D - 5322 390 10096
E - 5322 390 10096
F - GLUE

PLAYBACK & REC/PB MECHANISM


A MECHA
1-2
153
151
153
157
155
156
152
153
B MECHA
1-1

SCREW LIST - TAPE MECHANISM

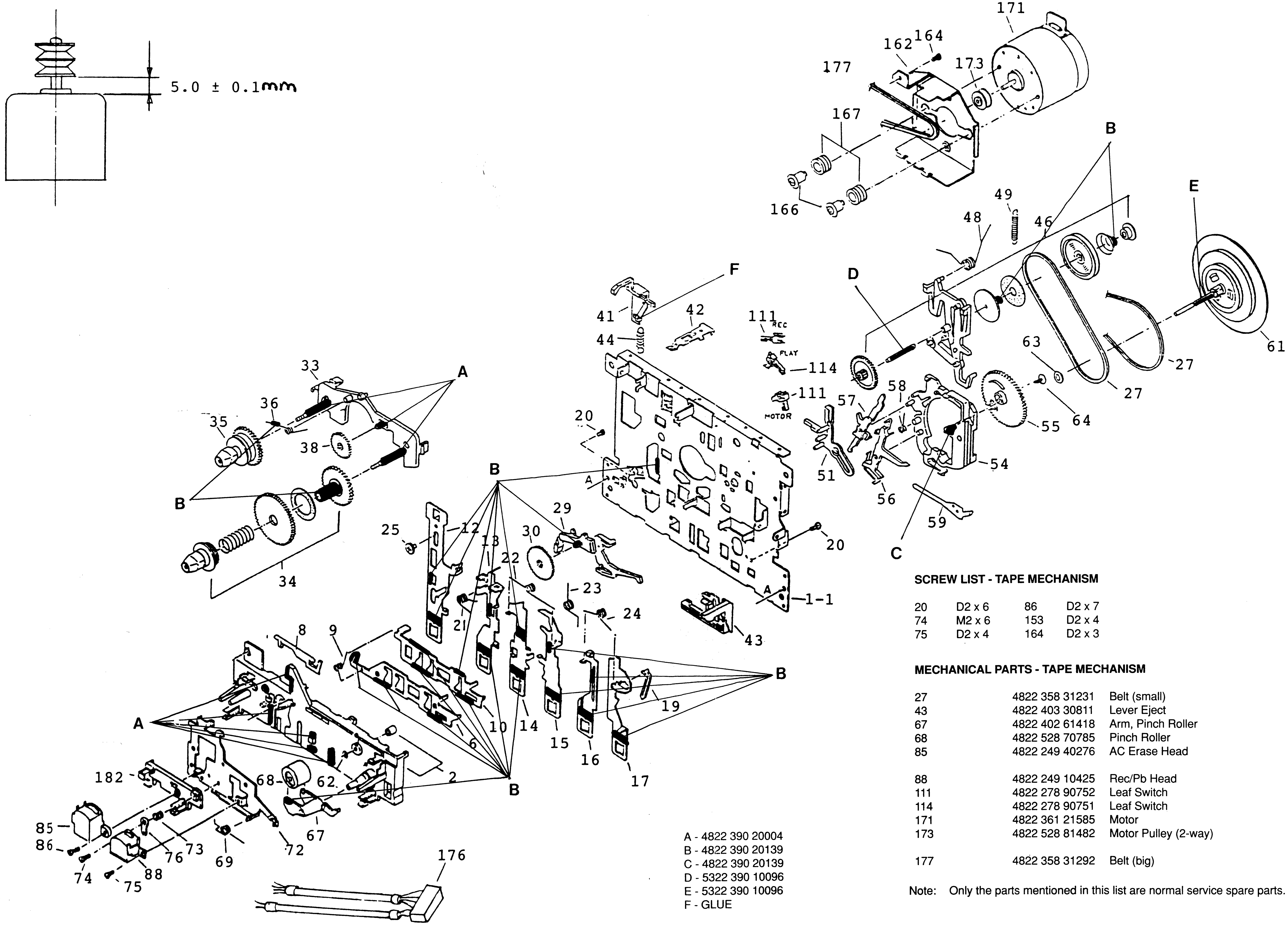
20	D2 x 6
74	M2 x 6
75	D2 x 4
86	D2 x 7
153	D2 x 4
164	D2 x 3

MECHANICAL PARTS - TAPE MECHANISM

A Mecha	4822 691 20924	Playback Mechanism
B Mecha	4822 691 20925	Record/Playback mechanism
1007	4822 691 20909	Complete Tape Mechanism YSW47-501

Note: Only the parts mentioned in this list are normal service spare parts.

REC/PB MECHANISM (B MECHA)


5.0 ± 0.1mm
171
162
164
177
173
167
166
B
49
48
46
E
61
F
41
42
44
111
REC
PLAY
114
111
MOTOR
D
63
27
27
58
57
55
64
54
51
56
59
C
20
20
33
A
36
35
38
B
34
B
29
25
12
13
30
22
21
23
24
1-1
43
8
9
B
19
A
10
14
15
16
17
6
2
B
182
68
62
67
85
86
74
75
88
76
73
69
72
176

A - 4822 390 20004
B - 4822 390 20139
C - 4822 390 20139
D - 5322 390 10096
E - 5322 390 10096
F - GLUE

SCREW LIST - TAPE MECHANISM

20	D2 x 6	86	D2 x 7
74	M2 x 6	153	D2 x 4
75	D2 x 4	164	D2 x 3

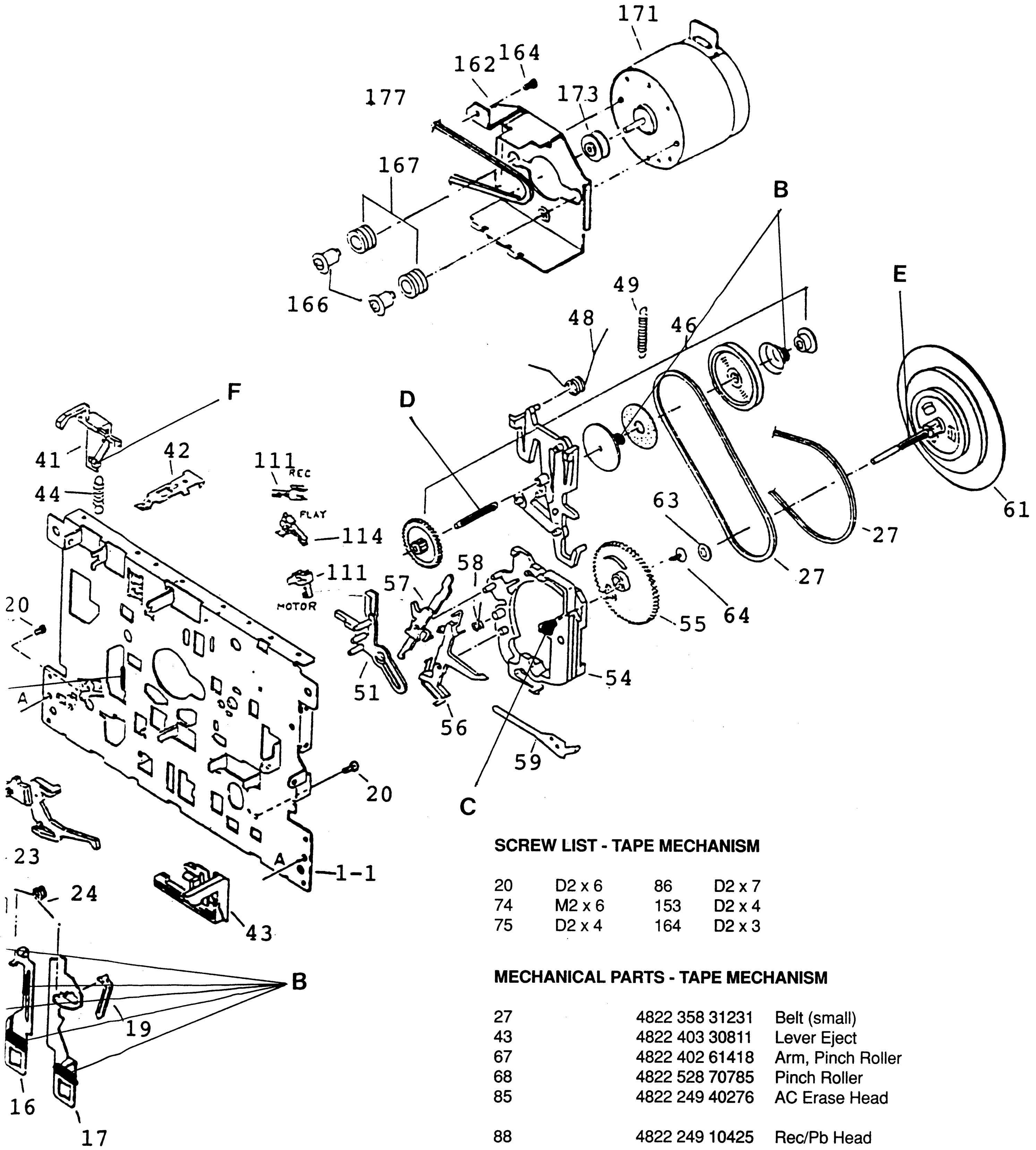
MECHANICAL PARTS - TAPE MECHANISM

27	4822 358 31231	Belt (small)
43	4822 403 30811	Lever Eject
67	4822 402 61418	Arm, Pinch Roller
68	4822 528 70785	Pinch Roller
85	4822 249 40276	AC Erase Head
88	4822 249 10425	Rec/Pb Head
111	4822 278 90752	Leaf Switch
114	4822 278 90751	Leaf Switch
171	4822 361 21585	Motor
173	4822 528 81482	Motor Pulley (2-way)
177	4822 358 31292	Belt (big)

Note: Only the parts mentioned in this list are normal service spare parts.

SCREW LIST -

100	M2 x 5
101	M1.7 x
102	D2.6 x
103	D2 x 6
104	D2 x 8
105	D2.6 x
106	M2.6 x
107	M2.6 x
108	M2 x 3
109	M2 x 4
110	D1.7 x
111	M2 x 4



A - 4822 390 20004
B - 4822 390 20139
C - 4822 390 20139
D - 5322 390 10096
E - 5322 390 10096
F - GLUE

SCREW LIST - TAPE MECHANISM

20	D2 x 6	86	D2 x 7
74	M2 x 6	153	D2 x 4
75	D2 x 4	164	D2 x 3

MECHANICAL PARTS - TAPE MECHANISM

27	4822 358 31231	Belt (small)
43	4822 403 30811	Lever Eject
67	4822 402 61418	Arm, Pinch Roller
68	4822 528 70785	Pinch Roller
85	4822 249 40276	AC Erase Head
88	4822 249 10425	Rec/Pb Head
111	4822 278 90752	Leaf Switch
114	4822 278 90751	Leaf Switch
171	4822 361 21585	Motor
173	4822 528 81482	Motor Pulley (2-way)
177	4822 358 31292	Belt (big)

Note: Only the parts mentioned in this list are normal service spare parts.

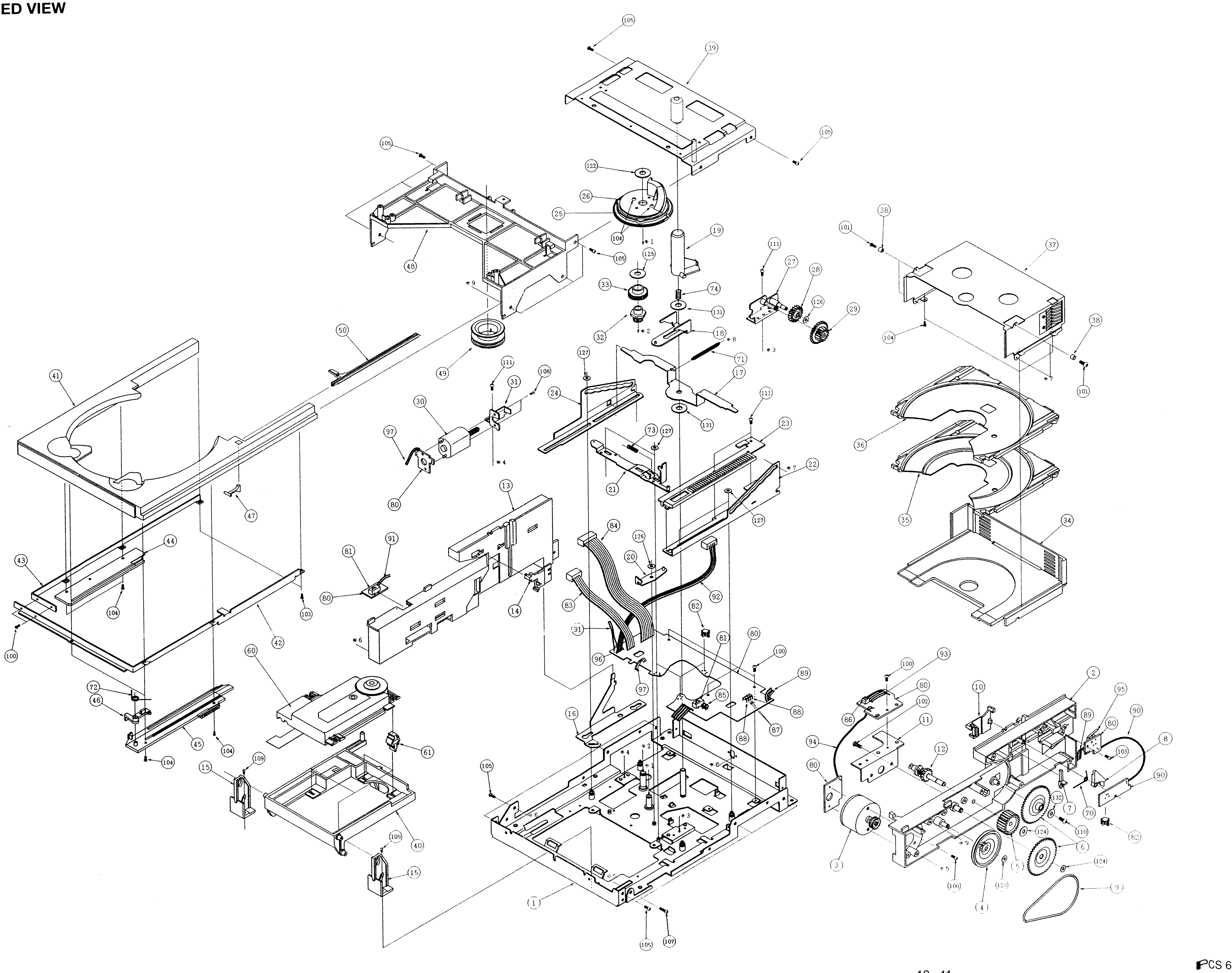
SCREW LIST - CDC UNIT

100	M2 x 5
101	M1.7 x 5
102	D2.6 x 8
103	D2 x 6
104	D2 x 8
105	D2.6 x 12
106	M2.6 x 5
107	M2.6 x 12
108	M2 x 3
109	M2 x 4
110	D1.7 x 4
111	M2 x 4

MECHANICAL PARTS - CDC MECHANISM

3	4822 361 21725	Motor assy R
4	4822 528 70861	Pulley gear
5	4822 522 33484	Change gear
6	4822 522 33483	Gear
9	4822 358 10148	Belt
12	4822 522 20457	Crutch assy
16	4822 402 50316	Carriage lever
17	4822 402 50315	Stocker arm
18	4822 402 61542	Lock pin cam assy
20	4822 402 61536	Arm change assy
21	4822 402 50314	Lever change assy
22	4822 402 61537	Stocker lever R
23	4822 522 33485	Stocker gear
24	4822 402 61538	Stocker lever L
25	4822 522 33479	Cam gear
26	4822 522 33478	Cam B
28	4822 522 33482	Gear
29	4822 522 33481	Gear
30	4822 361 21726	Motor assy F
32	4822 522 33476	Gear
33	4822 522 33477	Gear H
35	4822 466 93397	Carriage S
36	4822 466 93398	Carriage
38	4822 532 12282	Stocker Shaft
41	4822 444 30489	Tray
45	4822 466 93396	Tray plate R
46	4822 402 61539	Lock arm
47	4822 402 61541	Latch lever
49	4822 532 61255	Clamper assy
50	4822 535 93488	Shuttle
60	4822 691 30278	CD mech CDM12.1
61	4822 325 50215	Suspension
70	4822 492 42713	Spring
71	4822 492 33459	Spring
72	4822 492 42714	Spring C
73	4822 492 33461	Spring A
74	4822 492 52407	Spring D
81	4822 271 30845	Switch
82	4822 271 30847	Switch
85	4822 130 91369	Sensor
86	4822 130 91368	Sensor
87	4822 117 11343	470Ω 0.25W
88	4822 117 11344	47k 0.25W
95	4822 271 30846	Switch
122	4822 532 52591	Washer
123	4822 532 52588	Washer
124	4822 532 52589	Washer
125	4822 532 52585	Washer
126	4822 532 52586	Washer
127	4822 532 52587	Washer
131	4822 532 52465	Washer

CDC EXPLODED VIEW


105
39
105
122
26
25
104
※1
19
105
125
48
※9
33
74
131
32
※2
18
※8
71
17
131
27
28
126
29
111
※3
101
38
37
104
38
101
※7
50
49
41
111
31
108
30
97
80
※4
127
24
73
127
21
111
23
22
※7
127
36
35
34
47
13
84
126
20
92
91
81
80
14
83
82
43
44
104
103
42
100
※6
31
96
81
80
100
97
85
89
88
87
88
60
72
46
45
104
104
109
15
61
40
109
15
16
105
※2
※1
※8
※3
※6
1
105
107
93
100
80
86
102
11
10
12
94
80
3
2
95
90
89
80
103
8
90
7
70
132
110
82
124
5
6
124
※9
※5
106
123
4
9

ELECTRICAL PARTS - ECO4VA MIDI BOARD (except /22)

MISCELLANEOUS

1101	4822 267 10283	Socket IEC 75Ω
1104	4822 267 31505	Antenna socket 300Ω

⊣⊢

2100	4822 122 33195	100pF 10% 50V
2104	4822 122 33195	100pF 10% 50V
2107	5322 122 34123	1nF 10% 50V
2110	5322 122 32659	33pF 5% 50V for LW version
2110	5322 122 32269	6.8pF 5% 50V
2112	4822 122 33496	100nF 10% 63V
2114	5322 122 32531	100pF 5% 50V for LW version
2115	4822 125 60101	Trimmer 3-11pF 100V
2120	5322 122 32268	470pF 10% 50V
2121	5322 122 32481	15pF 5% 50V
2122	5322 122 34123	1nF 10% 50V
2123	5322 122 34123	1nF 10% 50V
2124	4822 121 51387	10nF 20% 16V
2129	4822 121 43705	390pF 1% 160V for LW version
2130	4822 125 50355	Trimmer 4.2-20pF 100V
2133	4822 122 33128	15nF 10% 63V for LW version
2134	4822 122 33197	1nF 10% 50V
2135	4822 121 70245	560pF 1% 160V
2138	5322 122 32659	33pF 5% 50V for 2-band version
2139	4822 122 33891	3.3nF 10% 63V for LW version
2141	4822 124 40244	2.2µF 20% 63V
2142	4822 124 40242	1µF 20% 63V
2143	4822 124 40239	0.47µF 20% 63V
2144	4822 124 40239	0.47µF 20% 63V
2145	4822 122 33496	100nF 10% 63V for LW version
2146	5322 122 33063	2.2pF 5% 50V for LW version
2147	4822 122 33177	10nF 20% 50V
2150	4822 124 40248	10µF 20% 63V
2151	4822 124 40248	10µF 20% 63V
2154	4822 122 33893	18nF 10% 63V
2154	4822 122 32541	27nF 10% 63V for USA version
2155	4822 122 33893	18nF 10% 63V
2155	4822 122 32541	27nF 10% 63V for USA version
2160	4822 124 40242	1µF 20% 63V
2161	4822 124 40242	1µF 20% 63V
2167	4822 122 33496	100nF 10% 63V
2169	5322 122 31863	330pF 5% 50V

⊣⊢

2170	4822 126 11714	4.7nF 20%
2171	5322 126 10223	4.7nF 10% 63V
2172	4822 124 41631	1.5µF 50V
2173	4822 124 40433	47µF 20% 25V
2177	4822 126 12882	100nF +80-20% 50V for LW version
2178	4822 122 33197	1nF 10% 50V
2179	4822 122 33195	100pF 10% 50V
2180	5322 122 31946	27pF 10% 50V
2181	4822 122 32139	12pF 2% 63V
2183	4822 122 33496	100nF 10% 63V
2184	4822 124 41584	100µF 20% 10V
2185	4822 122 33496	100nF 10% 63V
2186	5322 122 34123	1nF 10% 50V

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3106	4822 051 20104	100k 5% 0.1W
3107	4822 051 20222	2k2 5% 0.1W for LW version
3108	4822 051 20104	100k 5% 0.1W
3109	4822 051 20222	2k2 5% 0.1W for LW version
3112	4822 116 52176	10Ω 5% 0.5W
3116	4822 051 20335	3M3 5% 0.1W for LW version
3119	4822 116 52224	470Ω 5% 0.5W
3120	4822 116 52289	5k6 5% 0.5W
3121	4822 051 20104	100k 5% 0.1W
3122	4822 051 20471	470Ω 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124	4822 116 52256	2k2 5% 0.5W for LW version
3125	4822 051 20472	4k7 5% 0.1W for LW version
3128	4822 117 10833	10k 1% 0.1W
3129	4822 051 20472	4k7 5% 0.1W for LW version
3132	4822 116 52283	4k7 5% 0.5W
3141	4822 116 52215	220Ω 5% 0.5W
3142	4822 051 20222	2k2 5% 0.1W
3144	4822 117 10833	10k 1% 0.1W
3147	4822 051 20184	180k 5% 0.1W
3148	4822 100 11163	Trimmer 100k 30% 0.1W
3149	4822 051 20563	56k 5% 0.1W
3151	4822 116 52243	1k5 5% 0.5W
3156	4822 116 52233	10k 5% 0.5W
3157	4822 051 20273	27k 5% 0.1W
3158	4822 051 20189	18Ω 5% 0.1W for LW version
3159	4822 051 20563	56k 5% 0.1W
3162	4822 050 11002	1k 1% 0.4W

-▭-

3163	4822 050 11002	1k 1% 0.4W
3167	4822 051 20008	0Ω Jumper (0805)
3170	4822 116 52283	4k7 5% 0.5W
3171	4822 051 20101	100Ω 5% 0.1W
3172	4822 051 20472	4k7 5% 0.1W
3173	4822 116 52244	15k 5% 0.5W
3174	4822 116 52233	10k 5% 0.5W
3175	4822 051 20104	100k 5% 0.1W
3176	4822 051 20101	100Ω 5% 0.1W
3177	4822 116 52233	10k 5% 0.5W for LW version
3183	4822 051 20223	22k 5% 0.1W
3184	4822 051 20223	22k 5% 0.1W
3186	4822 051 20104	100k 5% 0.1W
3188	4822 051 10102	1k 2% 0.25W
3189	4822 116 52249	1k8 5% 0.5W
3190	4822 116 52249	1k8 5% 0.5W
3191	4822 116 52249	1k8 5% 0.5W
3192	4822 116 52249	1k8 5% 0.5W
3193	4822 116 52256	2k2 5% 0.5W
3194	4822 116 52219	330Ω 5% 0.5W for 2-band version
3195	4822 116 52219	330Ω 5% 0.5W
3197	4822 116 52219	330Ω 5% 0.5W
3206	4822 116 52215	220Ω 5% 0.5W
3211	4822 051 10008	0Ω 5% 0.25W
3212	4822 051 10008	0Ω 5% 0.25W
3213	4822 051 10008	0Ω 5% 0.25W
3222	4822 051 20008	0Ω Jumper (0805) for 2-band version
3223	4822 051 20008	0Ω Jumper (0805) for LW version
3224	4822 051 20008	0Ω Jumper (0805)
3226	4822 051 20008	0Ω Jumper (0805) for 2-band version
3228	4822 051 10008	0Ω 5% 0.25W
3229	4822 051 20008	0Ω Jumper (0805) for 2-band version
3231	4822 051 20008	0Ω Jumper (0805)
3233	4822 051 20008	0Ω Jumper (0805)
3235	4822 051 20008	0Ω Jumper (0805)
3237	4822 051 10008	0Ω 5% 0.25W
3238	4822 051 20008	0Ω Jumper (0805) for LW version
3240	4822 051 10479	47Ω 2% 0.25W
3241	4822 051 20008	0Ω Jumper (0805) for 2-band version
3242	4822 051 10008	0Ω 5% 0.25W
3243	4822 051 20008	0Ω Jumper (0805) for 2-band version
3244	4822 051 20008	0Ω Jumper (0805)
3245	4822 051 20008	0Ω Jumper (0805) for 2-band version

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3246	4822 051 10008	0Ω 5% 0.25W
3247	4822 051 10008	0Ω 5% 0.25W
3248	4822 051 10008	0Ω 5% 0.25W

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5105	4822 158 60641	MW/LW Antenna for LW version
5106	4822 158 60642	MW Antenna for 2-band version
5109	4822 156 30947	RF Coil 1.5 T
5120	4822 156 30947	RF Coil 1.5 T
5122	4822 157 60517	Osc. Coil LW for LW version
5123	4822 157 60517	Osc. Coil MW
5125	4822 157 61898	0.47µH for 2-band version
5140	4822 158 60511	AM-IF Filter 450kHz
5142	4822 157 70302	AM-IF Filter 450kHz
5143	4822 242 70665	Ceramic Filter 10.7MHz
5144	4822 242 70665	Ceramic Filter 10.7MHz
5145	4822 242 81362	Ceramic Discriminator
5170	4822 242 72976	Ceramic Resonator 7.2MHz

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6105	4822 130 83075	HN1V02H
6109	4822 130 82833	1SV228
6121	4822 130 30621	1N4148 (refer to circuit)
6122	4822 130 30621	1N4148 (refer to circuit)
6123	4822 130 30621	1N4148 (refer to circuit)
6124	4822 130 82833	1SV228
6140	4822 130 30621	1N4148
6154	4822 130 30621	1N4148
6174	4822 130 34233	BZX79-B5V1

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7102	5322 130 42136	BC848C for LW version
7104	5322 130 42136	BC848C for LW version
7105	4822 130 60093	2SA838B
7120	4822 130 60163	2SC1047
7121	5322 130 42136	BC848C for LW version
7123	5322 130 42136	BC848C for LW version
7128	5322 130 42136	BC848C for LW version
7140	4822 209 32701	TEA5712T/N2 (RF IC)
7168	5322 130 41983	BC858B
7170	5322 130 42136	BC848C
7171	5322 130 42136	BC848C
7172	5322 209 11517	MM74HCU04M Inverter
7173	4822 209 31998	LC7218M (Synthesizer)
7179	5322 130 42136	BC848C for LW version

Note: Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS - TUNER 92 BOARD (For /22 only)

MISCELLANEOUS

1101	4822 210 10492	Tuner unit FE415-G11
1110	4822 267 10283	FM Antenna socket

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2101	5322 122 34099	470pF 10% 63V
2102	5322 122 32268	470pF 10% 50V
2103	4822 124 40433	47µF 20% 25V
2104	4822 121 42408	220nF 5% 63V
2105	5322 122 32654	22nF 10% 63V
2108	5322 122 32654	22nF 10% 63V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2111	4822 122 32927	220nF +80-20% 50V
2112	5322 122 32654	22nF 10% 63V
2113	5322 122 32661	56pF 5% 50V
2114	5322 124 41431	22µF 20% 35V
2115	4822 124 40239	0.47µF 20% 63V
2116	5322 121 42386	100nF 5% 63V
2117	4822 122 33336	8.2nF 10% 50V
2118	4822 122 33336	8.2nF 10% 50V
2119	4822 124 40244	2.2µF 20% 63V
2120	4822 124 40244	2.2µF 20% 63V
2121	4822 124 40196	220µF 20% 16V
2123	4822 124 40246	4.7µF 20% 63V
2124	4822 124 40246	4.7µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 122 31782	15nF 10% 50V
2127	5322 122 31863	330pF 5% 50V
2128	5322 116 80853	560pF 5% 63V
2129	4822 124 40242	1µF 20% 63V
2131	4822 124 40248	10µF 20% 63V
2142	4822 125 60102	Trimmer 5.2-30pF 100V
2144	4822 121 42408	220nF 5% 63V
2145	4822 121 51263	510pF 1% 400V
2146	4822 121 70082	430pF 1% 400V
2147	5322 122 32654	22nF 10% 63V
2148	5322 122 32452	47pF 5% 63V
2149	4822 122 33177	10nF 20% 50V
2150	5322 122 32654	22nF 10% 63V
2151	5322 122 34099	470pF 10% 63V
2152	4822 124 40242	1µF 20% 63V
2153	5322 122 34099	470pF 10% 63V
2154	5322 122 32481	15pF 5% 50V
2155	5322 122 32965	18pF 5% 50V
2156	4822 124 40433	47µF 20% 25V
2158	5322 126 10223	4.7nF 10% 63V
2159	5322 126 10223	4.7nF 10% 63V
2160	4822 124 41631	1.5µF 50V
2161	4822 122 32927	220nF +80-20% 50V
2162	4822 126 11585	22nF +80-20% 25V
2188	5322 122 32654	22nF 10% 63V
2193	4822 125 60102	Trimmer 5.2-30pF 100V
2194	4822 125 60101	Trimmer 3-11pF 100V
2195	5322 122 33861	120pF 10% 50V
2196	5322 122 32448	10pF 5% 50V
2210	4822 124 41643	100µF 20% 16V
2215	5322 122 32268	470pF 10% 50V
2216	5322 122 32268	470pF 10% 50V
2221	5322 122 32268	470pF 10% 50V
2224	4822 122 33575	220pF 5% 50V
2225	4822 122 33575	220pF 5% 50V

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3101	4822 052 10478	⚠	4Ω7 5% 0.33W
3102	4822 051 20224		220k 5% 0.1W
3104	4822 051 20154		150k 5% 0.1W
3105	4822 051 20562		5k6 5% 0.1W
3106	4822 051 20829		82Ω 5% 0.1W
3107	4822 051 20008		0Ω Jumper (0805)
3113	4822 050 22201	⚠	220Ω 1% 0.6W
3114	4822 051 20332		3k3 5% 0.1W
3115	4822 051 20391		390Ω 5% 0.1W
3116	4822 051 20478		4Ω7 5% 0.1W
3117	4822 051 20331		330Ω 5% 0.1W
3118	4822 050 22201	⚠	220Ω 1% 0.6W
3120	4822 052 10229	⚠	22Ω 5% 0.33W
3121	4822 051 20272		2k7 5% 0.1W
3122	4822 051 20562		5k6 5% 0.1W
3123	4822 051 20223		22k 5% 0.1W
3124	4822 117 10833		10k 1% 0.1W
3125	4822 100 11213		Trimmer 22k 30% 0.1W
3126	4822 051 20123		12k 5% 0.1W
3127	4822 051 20182		1k8 5% 0.1W
3128	4822 051 20182		1k8 5% 0.1W
3129	4822 051 20822		8k2 5% 0.1W
3130	4822 116 52283		4k7 5% 0.5W
3131	4822 100 11319		Trimmer 4k7 30% 0.1W
3132	4822 117 10833		18k 1% 0.1W
3133	4822 051 20008		0Ω Jumper (0805)
3134	4822 116 52289		5k6 5% 0.5W
3135	4822 051 10008		0Ω 5% 0.25W
3137	4822 116 52283		4k7 5% 0.5W
3138	4822 116 83922	⚠	150Ω 5% 1W
3139	4822 051 20008		0Ω Jumper (0805)
3141	4822 051 20472		4k7 5% 0.1W
3142	4822 051 20472		4k7 5% 0.1W
3143	4822 051 20821		820Ω 5% 0.1W
3144	4822 051 20331		330Ω 5% 0.1W
3145	4822 051 20271		270Ω 5% 0.1W
3147	4822 116 52289		5k6 5% 0.5W
3148	4822 051 20104		100k 5% 0.1W
3149	4822 051 20472		4k7 5% 0.1W
3150	4822 050 25601		560Ω 1% 0.6W
3151	4822 116 52283		4k7 5% 0.5W
3152	4822 117 10833		10k 1% 0.1W
3153	4822 051 20274		270k 5% 0.1W
3155	4822 050 22201	⚠	220Ω 1% 0.6W
3156	4822 051 20153		15k 5% 0.1W
3157	4822 051 20472		4k7 5% 0.1W
3158	4822 116 52283		4k7 5% 0.5W
3159	4822 051 20104		100k 5% 0.1W
3160	4822 051 20104		100k 5% 0.1W
3162	4822 050 22701	⚠	270Ω 1% 0.6W
3163	4822 117 10833		10k 1% 0.1W
3164	4822 051 10473		47k 2% 0.25W
3165	4822 050 11002		1k 1% 0.4W
3166	4822 050 11002		1k 1% 0.4W
3167	4822 050 11002		1k 1% 0.4W
3168	4822 051 20008		0Ω Jumper (0805)
3170	4822 117 10833		10k 1% 0.1W
3171	4822 051 20223		22k 5% 0.1W
3172	4822 051 20472		4k7 5% 0.1W
3173	4822 051 20223		22k 5% 0.1W
3190	4822 051 20479		47Ω 5% 0.1W
3194	4822 051 20472		4k7 5% 0.1W
3196	4822 051 20008		0Ω Jumper (0805)
3197	4822 051 20008		0Ω Jumper (0805)
3198	4822 117 10833		10k 1% 0.1W
3200	4822 051 20008		0Ω Jumper (0805)
3201	4822 051 20472		4k7 5% 0.1W
3202	4822 051 20008		0Ω Jumper (0805)
3223	4822 051 20474		470k 5% 0.1W
3225	4822 050 11002		1k 1% 0.4W
3229	4822 051 20008		0Ω Jumper (0805)
3233	4822 051 10102		1k 2% 0.25W
3236	4822 051 20008		0Ω Jumper (0805)
3238	4822 051 20008		0Ω Jumper (0805)
3239	4822 051 20274		270k 5% 0.1W
3240	4822 051 20472		4k7 5% 0.1W

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5103	4822 242 72342	Ceramic filter 10.7MHz
5104	4822 157 63029	IF coil AM
5105	4822 157 63904	Q Detection coil
5106	4822 157 71044	Birdy coil
5108	4822 157 63912	AM osc
5110	4822 242 71878	Ceramic filter 450kHz
5111	4822 242 81248	Ceramic resonator 19kHz
5112	4822 242 72976	Crystal resonator 7.2MHz
5113	4822 242 72342	Ceramic filter 10.7MHz
5114	4822 157 51503	560µH 10%
5127	4822 158 60643	Ferroceptor

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6101	4822 130 34174	BZX79-C4V7
6102	4822 130 83075	HN1V02H
6110	4822 130 30621	1N4148

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7103	4822 209 31001	LA1851N
7104	5322 130 60068	BC558C
7105	4822 209 30178	LC7218
7106	4822 130 41327	BC327-40
7107	5322 130 41982	BC848B
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7111	5322 130 41982	BC848B
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	4822 130 40937	BC548B
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7125	4822 130 44197	BC558B
7151	4822 130 60163	2SC1047

Note: Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS - CDC BOARD

MISCELLANEOUS

1830	4822 071 51601	Fuse T160mA 250V
1850	4822 267 60383	Flex socket 24P
1852	4822 267 60383	Flex socket 24P
8801	4822 321 62522	Flex cable 24P

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2752	5322 122 32531	100pF 5% 50V
2763	5322 122 32658	22pF 5% 50V
2764	5322 122 32658	22pF 5% 50V
2769	4822 124 40246	4.7µF 20% 63V
2770	4822 124 40246	4.7µF 20% 63V
2802	4822 124 40242	1µF 20% 63V
2803	4822 122 33515	82pF 5% 63V
2804	4822 122 33515	82pF 5% 63V
2805	5322 122 33538	150pF 2% 63V
2806	5322 122 31946	27pF 10% 50V
2807	5322 122 32452	47pF 5% 63V
2808	5322 122 32452	47pF 5% 63V
2809	5322 122 32452	47pF 5% 63V
2810	5322 122 32481	15pF 5% 50V
2811	5322 122 33538	150pF 2% 63V
2814	4822 122 33175	2.2nF 20% 50V
2818	4822 124 40433	47µF 20% 25V
2820	4822 122 33173	560pF 10% 50V
2821	4822 126 10326	180pF 5% 63V
2822	5322 122 31863	330pF 5% 50V
2823	5322 122 31865	1.5nF 10% 63V
2824	4822 126 10326	180pF 5% 63V
2825	4822 122 33575	220pF 5% 50V
2826	4822 122 33575	220pF 5% 50V
2827	4822 122 33575	220pF 5% 50V
2828	4822 122 33575	220pF 5% 50V
2829	4822 122 33575	220pF 5% 50V
2830	4822 122 33575	220pF 5% 50V
2831	4822 124 40433	47µF 20% 25V
2833	5322 124 41431	22µF 20% 35V
2834	5322 122 32654	22nF 10% 63V
2836	4822 122 32646	5.6nF 10% 50V
2837	4822 122 33173	560pF 10% 50V
2838	4822 122 31947	100nF 20% 63V
2839	4822 122 33177	10nF 20% 50V
2840	4822 122 33219	1.8nF 10% 50V
2843	4822 124 40239	0.47µF 20% 63V
2844	5322 122 32531	100pF 5% 50V
2846	4822 122 31947	100nF 20% 63V
2847	4822 124 40433	47µF 20% 25V
2848	4822 124 40433	47µF 20% 25V
2849	4822 124 40433	47µF 20% 25V
2850	4822 124 40246	4.7µF 20% 63V
2851	4822 122 33336	8.2nF 10% 50V
2852	4822 122 31947	100nF 20% 63V

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2853	4822 122 31947	100nF 20% 63V
2854	5322 122 32531	100pF 5% 50V
2855	4822 122 31947	100nF 20% 63V
2856	5322 121 42661	330nF 5% 63V
2857	5322 122 32452	47pF 5% 63V
2858	5322 122 32654	22nF 10% 63V
2859	4822 122 31947	100nF 20% 63V
2860	4822 124 40433	47µF 20% 25V
2861	5322 122 32452	47pF 5% 63V
2862	5322 122 32452	47pF 5% 63V
2863 #	4822 122 31947	100nF 20% 63V
2864 #	4822 124 40433	47µF 20% 25V
2865 #	4822 124 40433	47µF 20% 25V
2866	4822 124 41997	470µF 10V
2867	4822 122 31947	100nF 20% 63V
2868 #	5322 122 34123	1nF 10% 50V
2869 #	5322 122 34123	1nF 10% 50V
2876	5322 122 34123	1nF 10% 50V
2877	5322 122 34123	1nF 10% 50V
2878	5322 122 32531	100pF 5% 50V
2879	5322 122 32531	100pF 5% 50V
2881	4822 124 40433	47µF 20% 25V
2882	4822 124 41643	100µF 20% 16V
2883	4822 122 31947	100nF 20% 63V
2886	5322 122 32531	100pF 5% 50V
2891	4822 122 31947	100nF 20% 63V
2892	4822 124 40433	47µF 20% 25V
2893	5322 122 32531	100pF 5% 50V
2894	5322 122 32531	100pF 5% 50V
2895	5322 122 32531	100pF 5% 50V
2896	4822 124 40433	47µF 20% 25V
2897	4822 122 33173	560pF 10% 50V
2898	4822 122 33173	560pF 10% 50V
2899	4822 124 40433	47µF 20% 25V

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3751	4822 051 20331	330Ω 5% 0.1W
3752	4822 051 20221	220Ω 5% 0.1W
3755	4822 117 10833	10k 1% 0.1W
3760	4822 050 11002	1k 1% 0.4W
3761	4822 050 11002	1k 1% 0.4W
3762	4822 051 20221	220Ω 5% 0.1W
3763	4822 051 20221	220Ω 5% 0.1W
3764	4822 051 20221	220Ω 5% 0.1W
3781	4822 051 20479	47Ω 5% 0.1W
3782	4822 051 20472	4k7 5% 0.1W
3783	4822 117 10833	10k 1% 0.1W
3784	4822 117 10833	10k 1% 0.1W
3785	4822 117 10833	10k 1% 0.1W
3786	4822 117 10833	10k 1% 0.1W
3787	4822 117 10833	10k 1% 0.1W

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3788	4822 117 10833	10k 1% 0.1W
3789	4822 117 10833	10k 1% 0.1W
3790	4822 117 10833	10k 1% 0.1W
3791 *	4822 117 10833	10k 1% 0.1W
3792 #	4822 117 10833	10k 1% 0.1W
3793	4822 117 10833	10k 1% 0.1W
3794	4822 117 10833	10k 1% 0.1W
3795	4822 117 10833	10k 1% 0.1W
3796	4822 117 10833	10k 1% 0.1W
3797	4822 117 10833	10k 1% 0.1W
3798	4822 117 10833	10k 1% 0.1W
3799	4822 117 10833	10k 1% 0.1W
3801	4822 116 52224	470Ω 5% 0.5W
3802	4822 051 10102	1k 2% 0.25W
3803	4822 051 20335	3M3 5% 0.1W
3804	4822 051 20682	6k8 5% 0.1W
3805	4822 051 20223	22k 5% 0.1W
3806	4822 117 10833	10k 1% 0.1W
3807	4822 117 10833	10k 1% 0.1W
3808	4822 117 10834	47k 1% 0.1W
3809	4822 051 20332	3k3 5% 0.1W
3810	4822 051 20332	3k3 5% 0.1W
3811	4822 051 20223	22k 5% 0.1W
3812	4822 051 20332	3k3 5% 0.1W
3813	4822 051 20332	3k3 5% 0.1W
3814	4822 051 20332	3k3 5% 0.1W
3815	4822 050 11002	1k 1% 0.4W
3816 #	4822 117 10833	10k 1% 0.1W
3816	4822 051 20103	10k 5% 0.1W
3817	4822 051 20221	220Ω 5% 0.1W
3818	4822 116 52233	10k 5% 0.5W
3820	4822 050 11002	1k 1% 0.4W
3821	4822 051 20124	120k 5% 0.1W
3822	4822 051 20563	56k 5% 0.1W
3823	4822 051 20331	330Ω 5% 0.1W
3824	4822 051 20124	120k 5% 0.1W
3825	4822 116 52233	10k 5% 0.5W
3826	4822 116 52233	10k 5% 0.5W
3827	4822 116 52233	10k 5% 0.5W
3828	4822 116 52233	10k 5% 0.5W
3829	4822 116 52233	10k 5% 0.5W
3830	4822 116 52233	10k 5% 0.5W
3831	4822 051 20224	220k 5% 0.1W
3832	4822 052 10478	4Ω7 5% 0.33W
3833	4822 117 10833	10k 1% 0.1W
3834	4822 052 10478	4Ω7 5% 0.33W
3835	4822 116 52264	27k 5% 0.5W
3836	4822 051 20122	1k2 5% 0.1W
3837	4822 051 20682	6k8 5% 0.1W
3838	4822 116 52257	22k 5% 0.5W
3839	4822 051 20122	1k2 5% 0.1W
3840	4822 051 20682	6k8 5% 0.1W

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3841 #	4822 051 20333		33k 5% 0.1W
3841	4822 051 20393		39k 5% 0.1W
3842	4822 051 10102		1k 2% 0.25W
3843	4822 051 20333		33k 5% 0.1W
3844	4822 051 10102		1k 2% 0.25W
3845	4822 051 20333		33k 5% 0.1W
3846	4822 051 10102		1k 2% 0.25W
3847	4822 052 10228	△	2Ω2 5% 0.33W
3848	4822 050 11002		1k 1% 0.4W
3849	4822 052 10478	△	4Ω7 5% 0.33W
3850	4822 051 10102		1k 2% 0.25W
3851	4822 116 52264		27k 5% 0.5W
3852	4822 051 10102		1k 2% 0.25W
3853	4822 051 20822		8k2 5% 0.1W
3855	4822 051 20224		220k 5% 0.1W
3856	4822 051 20223		22k 5% 0.1W
3857	4822 051 20221		220Ω 5% 0.1W
3858	4822 051 20221		220Ω 5% 0.1W
3860	4822 052 10478		4Ω7 5% 0.33W
3862	4822 051 20105		1M 5% 0.1W
3863	4822 050 11002		1k 1% 0.4W
3864	4822 050 11002		1k 1% 0.4W
3865	4822 050 11002		1k 1% 0.4W
3866	4822 051 20331		330Ω 5% 0.1W
3867 #	4822 052 10479		47Ω 5% 0.33W
3868	4822 052 10479		47Ω 5% 0.33W
3871	4822 052 10478	△	4Ω7 5% 0.33W
3872	4822 117 10833		10k 1% 0.1W
3876	4822 117 10834		47k 1% 0.1W
3877	4822 117 10834		47k 1% 0.1W
3878	4822 051 20472		4k7 5% 0.1W
3879	4822 051 20472		4k7 5% 0.1W
3880	4822 051 10102		1k 2% 0.25W
3881	4822 051 10102		1k 2% 0.25W
3885	4822 050 11002		1k 1% 0.4W
3886	4822 116 52226		560Ω 5% 0.5W
3887	4822 051 20223		22k 5% 0.1W
3889	4822 117 10833		10k 1% 0.1W
3890	4822 050 11002		1k 1% 0.4W
3891	4822 052 10478	△	4Ω7 5% 0.33W
3892	4822 117 10833		10k 1% 0.1W
3893	4822 117 10833		10k 1% 0.1W
3894	4822 117 10833		10k 1% 0.1W
3895 #	4822 051 20273		27k 5% 0.1W
3895	4822 051 20333		33k 5% 0.1W
3896	4822 051 10102		1k 2% 0.25W
3899	4822 052 10478	△	4Ω7 5% 0.33W
9870	4822 051 20008		0Ω 0 Jumper (0805)
9880	4822 051 10008		0Ω 5% 0.25W
9881	4822 051 10008		0Ω 5% 0.25W

# For Bitstream versions only
* For Non-bitstream versions only

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9882	4822 051 10008	0Ω 5% 0.25W
9883	4822 051 10008	0Ω 5% 0.25W
9884	4822 051 10008	0Ω 5% 0.25W
9885	4822 051 10008	0Ω 5% 0.25W

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5860	4822 242 81151	Crystal 16.9334MHz
5861	5322 242 73697	Ceramic resonator 8MHz
5890	4822 242 73557	Resonator 8.467MHz

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6857	5322 130 30684	1N4002GP
6858	5322 130 30684	1N4002GP
6881	4822 130 31981	BZX79-C3V9
6883	5322 130 34563	BZX79-C2V7

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7800	4822 209 30704	MC74HCU04D
7820	5322 130 44779	BC338-40
7830	4822 209 33407	TMP87CC70
7850	4822 209 31064	TDA1301T/N1
7851	4822 209 32852	TDA7073A/N2
7852	4822 209 32852	TDA7073A/N2
7853	4822 209 32852	TDA7073A/N2
7856	4822 130 41715	BC328-40
7860	4822 209 33339	SAA7345GP/M5
7870 #	4822 209 33252	TDA1549T/N1
7872 *	4822 209 32421	TDA1311A/N2
7881	5322 130 60068	BC558C
7883	5322 130 60068	BC558C
7884	4822 130 40855	BC337
7885	4822 130 40855	BC337
7886	4822 209 80891	MC7805CT

For Bitstream versions only
* For Non-bitstream versions only

Note: Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS - CDC KEY BOARD

MISCELLANEOUS

1450	4822 276 13114	Tact Switch
1451	4822 276 13114	Tact Switch
1452	4822 276 13114	Tact Switch
1453	4822 276 13114	Tact Switch
1454	4822 276 13114	Tact Switch
1455	4822 276 13114	Tact Switch
1456	4822 276 13114	Tact Switch
1457	4822 276 13114	Tact Switch
1458	4822 276 13114	Tact Switch
1459	4822 276 13114	Tact Switch
1460	4822 276 13114	Tact Switch
1461	4822 276 13114	Tact Switch
1462	4822 276 13114	Tact Switch
1463	4822 276 13114	Tact Switch
1464	4822 276 13114	Tact Switch
1465	4822 276 13114	Tact Switch
1484	4822 276 13114	Tact Switch
1485	4822 276 13114	Tact Switch

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2464	4822 126 12787	330pF 10% 50V
2465	4822 126 12787	330pF 10% 50V

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3450	4822 116 52219	330Ω 5% 0.5W
3451	4822 116 52219	330Ω 5% 0.5W
3452	4822 116 52219	330Ω 5% 0.5W
3453	4822 116 52219	330Ω 5% 0.5W
3454	4822 116 52219	330Ω 5% 0.5W
3455	4822 116 52219	330Ω 5% 0.5W
3456	4822 116 52219	330Ω 5% 0.5W
3457	4822 116 52219	330Ω 5% 0.5W
3458	4822 116 52219	330Ω 5% 0.5W
3459	4822 116 52219	330Ω 5% 0.5W
3460	4822 116 52219	330Ω 5% 0.5W
3461	4822 116 52219	330Ω 5% 0.5W
3462	4822 116 52219	330Ω 5% 0.5W
3463	4822 116 52219	330Ω 5% 0.5W
3464	4822 116 52234	100k 5% 0.5W
3465	4822 116 52234	100k 5% 0.5W
3467	4822 116 52234	100k 5% 0.5W

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6450	4822 130 30621	1N4148
6451	4822 130 30621	1N4148
6452	4822 130 30621	1N4148
6453	4822 130 30621	1N4148
6458	4822 130 30621	1N4148

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6459	4822 130 82978	LTL-16KPE(red)
6460	4822 130 83363	LTL-16KGE(grn)
6461	4822 130 82978	LTL-16KPE(red)
6462	4822 130 83363	LTL-16KGE(grn)
6463	4822 130 82978	LTL-16KPE(red)
6464	4822 130 83363	LTL-16KGE(grn)
6465	4822 130 82978	LTL-16KPE(red)
6466	4822 130 82978	LTL-16KPE(red)
6467	4822 130 83363	LTL-16KGE(grn)
6468	4822 130 82978	LTL-16KPE(red)
6469	4822 130 83363	LTL-16KGE(grn)
6470	4822 130 82978	LTL-16KPE(red)
6471	4822 130 83363	LTL-16KGE(grn)
6472	4822 130 83363	LTL-16KGE(grn)
6473	4822 130 30621	1N4148
6474	4822 130 30621	1N4148
6475	4822 130 30621	1N4148

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7450	4822 130 40937	BC548B
7495	5322 209 71555	74HC373D
7496	5322 209 71555	74HC373D
7498	5322 209 10421	HEF4094BP

Note: Only the parts mentioned in this list are normal service spare parts

ELECTRICAL PARTS - FRONT BOARD

MISCELLANEOUS

1401	4822 130 91315	LCD Display
1401	4822 130 91319	LCD Display for FW36/37
1410	4822 276 13114	Tact Switch (except /37)
1411	4822 276 13114	Tact Switch
1412	4822 276 13114	Tact Switch
1413	4822 276 13114	Tact Switch
1414	4822 276 13114	Tact Switch
1415	4822 276 13114	Tact Switch
1416	4822 276 13114	Tact Switch
1417	4822 276 13114	Tact Switch
1418	4822 276 13114	Tact Switch
1419	4822 276 13114	Tact Switch
1420	4822 276 13114	Tact Switch
1421	4822 276 13114	Tact Switch
1422	4822 276 13114	Tact Switch
1423	4822 276 13114	Tact Switch
1424	4822 276 13114	Tact Switch
1425	4822 276 13114	Tact Switch
1426	4822 276 13114	Tact Switch
1427	4822 276 13114	Tact Switch
1428	4822 276 13114	Tact Switch
1429	4822 276 13114	Tact Switch

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2401	4822 124 22225	330µF 20% 16V
2402	4822 124 80818	22mF 5.5V
2403	4822 124 23176	22µF 20% 16V
2405	4822 126 11585	22nF +80-20% 25V
2410	4822 124 22403	10µF 20% 16V
2401	5322 121 42386	100nF 20% 63V
2413	4822 122 33191	22pF 5% 50V
2414	4822 122 33191	22pF 5% 50V
2415	4822 121 51387	10nF 20% 16V
2417	4822 122 33849	150pF 10% 50V
2418	4822 122 33069	33pF 5% 50V
2424	4822 126 12787	330pF 10% 50V
2513	4822 121 51252	470nF 5% 63V
2514	4822 121 51252	470nF 5% 63V
2515	4822 126 12147	22nF 10% 25V
2516	4822 126 12147	22nF 10% 25V
2517	4822 122 10575	8.2nF 20% 16V
2518	4822 122 10575	8.2nF 20% 16V
2519	4822 122 10576	1.8nF 10% 16V
2520	4822 122 10576	1.8nF 10% 16V
2521	4822 121 51252	470nF 5% 63V
2522	4822 121 51252	470nF 5% 63V
2523	4822 126 12147	22nF 10% 25V
2524	4822 126 12147	22nF 10% 25V
2525	4822 122 10575	8.2nF 20% 16V
2526	4822 122 10575	8.2nF 20% 16V
2527	4822 122 10576	1.8nF 10% 16V

2528	4822 122 10576	1.8nF 10% 16V
2529	4822 122 33169	680pF 10% 50V
2530	4822 122 33169	680pF 10% 50V
2531	4822 126 10178	820pF 10% 50V
2532	4822 126 10178	820pF 10% 50V
2533	4822 122 33195	100pF 10% 50V
2534	4822 122 33195	100pF 10% 50V
2535	4822 122 33069	33pF 5% 50V
2536	4822 122 33069	33pF 5% 50V
2537	4822 124 41643	100µF 20% 16V
2538	4822 126 11585	22nF +80-20% 25V
2539	4822 124 41643	100µF 20% 16V
2541	4822 124 40246	4.7µF 20% 63V
2542	4822 124 40246	4.7µF 20% 63V

3402	4822 116 52228	680Ω 5% 0.5W
3403	4822 116 52234	100k 5% 0.5W
3404	4822 116 52233	10k 5% 0.5W
3405	4822 116 52224	470Ω 5% 0.5W
3406	4822 116 52256	2k2 5% 0.5W
3407	4822 050 11002	1k 1% 0.4W
3410	4822 116 52175	100Ω 5% 0.5W
3411	4822 116 52233	10k 5% 0.5W
3412	4822 116 52233	10k 5% 0.5W
3413	4822 116 52233	10k 5% 0.5W
3414	4822 116 52233	10k 5% 0.5W
3415	4822 116 52233	10k 5% 0.5W
3416	4822 116 52233	10k 5% 0.5W
3417	4822 116 52233	10k 5% 0.5W
3418	4822 116 52233	10k 5% 0.5W
3419	4822 116 52233	10k 5% 0.5W
3420	4822 116 52233	10k 5% 0.5W
3421	4822 116 52283	4k7 5% 0.5W
3422	4822 116 52283	4k7 5% 0.5W
3423	4822 116 52283	4k7 5% 0.5W
3424	4822 116 90836	Resistor network 5 X 10k
3425	4822 116 52283	4k7 5% 0.5W
3430	4822 116 52233	10k 5% 0.5W
3431	4822 116 52233	10k 5% 0.5W
3432	4822 050 11002	1k 1% 0.4W
3433	4822 116 52233	10k 5% 0.5W
3434	4822 116 52233	10k 5% 0.5W
3435	4822 116 52233	10k 5% 0.5W
3436	4822 116 52233	10k 5% 0.5W
3445	4822 050 11002	1k 1% 0.4W
3446	4822 050 11002	1k 1% 0.4W
3447	4822 050 11002	1k 1% 0.4W
3448	4822 116 90836	Resistor network 5 X 10k
3449	4822 116 90836	Resistor network 5 X 10k
3450	4822 116 52233	10k 5% 0.5W
3451	4822 116 52233	10k 5% 0.5W
3452	4822 116 52233	10k 5% 0.5W
3453	4822 050 11002	1k 1% 0.4W
3456	4822 050 11002	1k 1% 0.4W
3461	4822 116 52234	100k 5% 0.5W
3462	4822 116 52219	330Ω 5% 0.5W
3463	4822 116 52234	100k 5% 0.5W
3470	4822 116 52233	10k 5% 0.5W
3501	4822 116 52256	2k2 5% 0.5W
3502	4822 116 52256	2k2 5% 0.5W
3503	4822 116 52304	82k 5% 0.5W
3504	4822 116 52304	82k 5% 0.5W
3505	4822 116 52224	470Ω 5% 0.5W
3506	4822 116 52224	470Ω 5% 0.5W
3507	4822 105 11107	Potm. slide 50k X 2
3508	4822 105 11107	Potm. slide 50k X 2
3509	4822 105 11107	Potm. slide 50k X 2
3510	4822 105 11107	Potm. slide 50k X 2
3511	4822 105 11107	Potm. slide 50k X 2
3513	4822 116 52244	15k 5% 0.5W
3514	4822 116 52244	15k 5% 0.5W
3515	4822 116 52251	18k 5% 0.5W
3516	4822 116 52251	18k 5% 0.5W
3517	4822 116 52251	18k 5% 0.5W
3518	4822 116 52251	18k 5% 0.5W
3519	4822 116 52257	22k 5% 0.5W
3520	4822 116 52257	22k 5% 0.5W
3521	4822 116 52244	15k 5% 0.5W
3522	4822 116 52244	15k 5% 0.5W
3523	4822 116 52244	15k 5% 0.5W
3524	4822 116 52244	15k 5% 0.5W
3525	4822 116 52251	18k 5% 0.5W
3526	4822 116 52251	18k 5% 0.5W
3527	4822 116 52251	18k 5% 0.5W
3528	4822 116 52251	18k 5% 0.5W
3531	4822 116 52243	1k5 5% 0.5W
3532	4822 116 52243	1k5 5% 0.5W
3533	4822 116 52243	1k5 5% 0.5W
3534	4822 116 52243	1k5 5% 0.5W
3535	4822 116 52292	560k 5% 0.5W
3536	4822 116 52292	560k 5% 0.5W
3537	4822 116 52257	22k 5% 0.5W
3538	4822 116 52257	22k 5% 0.5W
3544	4822 116 52224	470Ω 5% 0.5W

5401	5322 242 73697	Ceramic resonator 8MHz
5402	4822 242 70938	Crystal 32.768kHz
5403	4822 156 21721	2.2µH 20%
5405	4822 156 21721	2.2µH 20%
5406	4822 156 21721	2.2µH 20%
5407	4822 156 21721	2.2µH 20%
5408	4822 156 21721	2.2µH 20%
5409	4822 156 21721	2.2µH 20%
5420	4822 157 52983	22µH 10%

6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6406	4822 214 52009	GP1U58XP
6410	4822 130 30621	1N4148
6411	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6417	4822 130 30621	1N4148
6420	4822 130 82978	LTL-16KPE
6421	4822 130 30621	1N4148

7401	4822 209 33354	TMP87C 20 UPC FW36
7402	4822 209 31508	ST24C01
7403	5322 209 10421	HEF4094BP
7410	4822 130 44196	BC548C
7411	4822 130 44197	BC558B
7539	4822 209 83274	NJM4560D

Note: Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS - COMBI BOARD

MISCELLANEOUS

1281	4822 272 10269		Voltage Selector
1285	4822 071 51002	△	Fuse T1A 250V
1285	4822 253 30334	△	Fuse T1.25A 250V for /37
1286	4822 071 51002	△	Fuse T1A 250V
1286	4822 253 30334	△	Fuse T1.25A 250V for /37
1289	4822 071 55002	△	Fuse T5A 250V
1289	4822 252 51123	△	Fuse T6.3A 250V for /37
1304	4822 267 31176		Loudspeaker Socket
1494	4822 134 41171		Lamp Assy Blue for /37
1495	4822 134 41171		Lamp Assy Blue for /37
1496	4822 134 41171		Lamp Assy Blue for /37
1497	4822 134 41171		Lamp Assy Blue
1498	4822 134 41171		Lamp Assy Blue
1499	4822 134 41171		Lamp Assy Blue
1550 +	4822 267 40898		Headphone Socket
1552 +	4822 267 30631		AUX/TV Socket

2250	4822 121 41853	100nF 10% 100V
2251	5322 121 42386	100nF 5% 63V
2252	5322 121 42386	100nF 5% 63V
2253	4822 124 42119	4700µF 20% 25V
2254	4822 124 41397	47µF 20% 25V
2255	4822 122 33519	470pF 10% 50V
2256	4822 126 11585	22nF +80-20% 25V
2257	4822 121 41853	100nF 10% 100V
2258	5322 121 42386	100nF 5% 63V
2260	4822 124 80148	2200µF 20% 16V
2261	4822 124 41397	47µF 20% 25V
2262	4822 124 40849	330µF 20% 16V
2263	4822 124 40244	2.2µF 20% 63V
2264	5322 121 42386	100nF 5% 63V
2265	4822 124 41551	100µF 20% 25V
2266	4822 126 11585	22nF +80-20% 25V
2267	4822 124 41397	47µF 20% 25V
2269	4822 126 11592	1nF 10% 50V
2315	4822 126 12145	47nF 10% 25V
2316	4822 126 12145	47nF 10% 25V
2317	4822 124 40248	10µF 20% 63V
2318	4822 124 40248	10µF 20% 63V
2319	4822 124 41397	47µF 20% 25V
2320	4822 124 41397	47µF 20% 25V
2321	4822 126 10782	680pF 50V
2322	4822 126 10782	680pF 50V
2323	4822 126 10781	470pF 50V
2324	4822 126 10781	470pF 50V
2325 +	4822 124 41643	100µF 20% 16V
2326 +	4822 124 41643	100µF 20% 16V
2327	4822 122 33308	100pF 10% 500V

+ Not for /37

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2328		4822 122 33308	△	100pF 10% 500V
2329		5322 124 41431		22µF 20% 35V
2330		5322 124 41431		22µF 20% 35V
2333		4822 124 41397		47µF 20% 25V
2334		4822 124 41397		47µF 20% 25V
2335		4822 124 41397		47µF 20% 25V
2336		4822 124 41397		47µF 20% 25V
2337		4822 121 42408		220nF 5% 63V
2338		4822 121 42408		220nF 5% 63V
2339		4822 121 42408		220nF 5% 63V
2340		4822 121 42408		220nF 5% 63V
2350		4822 124 41551		100µF 20% 25V
2351	+	4822 126 12882		100nF +80-20% 50V
2352	+	4822 126 12882		100nF +80-20% 50V
2353	+	4822 126 12882		100nF +80-20% 50V
2355		4822 126 11592		1nF 10% 50V
2356		4822 126 11592		1nF 10% 50V
2363		5322 121 42386		100nF 5% 63V
2364		5322 121 42386		100nF 5% 63V
2365		4822 121 42408		220nF 5% 63V
2366		4822 121 42408		220nF 5% 63V
2367		4822 126 12785		47nF 50V
2368		4822 126 12785		47nF 50V
2369		4822 122 32039		100nF 20% 25V
2370		4822 122 33308		100pF 10% 500V
2501		4822 122 33195		100pF 10% 50V
2502		4822 122 33195		100pF 10% 50V
2503		4822 122 33195		100pF 10% 50V
2504		4822 122 33195		100pF 10% 50V
2505		4822 126 12148		2.7nF 10%
2506		4822 126 12148		2.7nF 10%
2507	+	4822 122 33519		470pF 10% 50V
2508	+	4822 122 33519		470pF 10% 50V
2509	+	4822 124 41398		1µF 20% 63V
2510	+	4822 124 41398		1µF 20% 63V
2511	+	4822 124 40248		10µF 20% 63V
2512	+	4822 124 40248		10µF 20% 63V
2513	+	4822 126 12148		2.7nF 10%
2514	+	4822 126 12148		2.7nF 10%
2515		4822 124 41398		1µF 20% 63V
2516		4822 124 41398		1µF 20% 63V
2517		4822 122 33195		100pF 10% 50V
2518		4822 122 33195		100pF 10% 50V
2519		4822 124 40248		10µF 20% 63V
2520		4822 124 40248		10µF 20% 63V
2521		4822 126 12145		47nF 10% 25V
2522		4822 126 12145		47nF 10% 25V
2550		4822 124 41397		47µF 20% 25V
2551		4822 121 51387		10nF 20% 16V
2552		4822 124 41643		100µF 20% 16V
2553		4822 124 40246		4.7µF 20% 63V
2554		4822 124 40248		10µF 20% 63V

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2555		4822 124 41398		1µF 20% 63V
2556		4822 124 41398		1µF 20% 63V
2557		4822 124 41398		1µF 20% 63V
2558		4822 124 41398		1µF 20% 63V
2559		4822 124 40244		2.2µF 20% 63V
2560		4822 124 40244		2.2µF 20% 63V
2561		4822 126 11585		22nF +80-20% 25V
2563		4822 124 40248		10µF 20% 63V
2564		4822 124 40248		10µF 20% 63V
2571		4822 122 33069		33pF 5% 50V
2572		4822 122 33197		1nF 10% 50V
2573		4822 122 33197		1nF 10% 50V
2574		4822 122 33197		1nF 10% 50V
2575		4822 122 33195		100pF 10% 50V
2576		4822 122 33195		100pF 10% 50V
2577		4822 122 33195		100pF 10% 50V
2578		4822 122 33195		100pF 10% 50V
2605		4822 124 41643		100µF 20% 16V
2606		4822 124 41643		100µF 20% 16V
2613	+	4822 122 33195		100pF 10% 50V
2614	+	4822 122 33195		100pF 10% 50V
2615		4822 122 33195		100pF 10% 50V
2629	+	4822 124 41643		100µF 20% 16V
2700		4822 122 33195		100pF 10% 50V
2701		4822 122 33195		100pF 10% 50V
2702		4822 126 11714		4.7nF 20%
2703		4822 121 43526		47nF 5% 250V
2704		4822 122 33195		100pF 10% 50V
2705		4822 124 41997		470µF 10V
2706		4822 122 33195		100pF 10% 50V
2707		4822 122 33195		100pF 10% 50V
2708		4822 124 41997		470µF 10V
2709		4822 124 40196		220µF 20% 16V
2710		4822 122 33195		100pF 10% 50V
2711		4822 124 40433		47µF 20% 25V
2712		4822 124 40433		47µF 20% 25V
2713		4822 122 33195		100pF 10% 50V
2714		4822 122 33195		100pF 10% 50V
2715		4822 124 40248		10µF 20% 63V
2716		4822 124 40248		10µF 20% 63V
2717		4822 126 12785		47nF 50V
2719		4822 121 51305		15nF 10% 50V
2720		4822 121 51305		15nF 10% 50V
2721		4822 121 43187		27nF 5% 250V
2722		4822 121 43187		27nF 5% 250V
2723		4822 121 43145		33nF 10% 50V
2724		4822 122 33195		100pF 10% 50V
2725		5322 121 42489		33nF 5% 250V
2726		5322 124 41431		22µF 20% 35V
2727		4822 124 40248		10µF 20% 63V
2728		4822 124 40248		10µF 20% 63V
2729		4822 124 40242		1µF 20% 63V

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2730		4822 124 40433		47µF 20% 25V
2731		4822 126 11714		4.7nF 20%
2732		4822 126 12882		100nF +80-20% 50V
2733		4822 124 40433		47µF 20% 25V
2735		4822 126 12882		100nF +80-20% 50V
2736		4822 121 43179		18nF 5% 250V
2737		4822 121 43179		18nF 5% 250V
2738		5322 121 42489		33nF 5% 250V
2739		5322 121 42489		33nF 5% 250V
2740		4822 124 40242		1µF 20% 63V
2741		4822 122 33195		100pF 10% 50V
2742		4822 122 33519		470pF 10% 50V
2743		4822 122 33195		100pF 10% 50V
2745		4822 122 33519		470pF 10% 50V
2750		4822 126 12787		330pF 10% 50V
2751		4822 126 12787		330pF 10% 50V
2752		4822 122 33195		100pF 10% 50V
2753		4822 124 40246		4.7µF 20% 63V
2754		4822 121 51387		10nF 20% 16V

▭

3251		4822 116 52233		10k 5% 0.5W
3252		4822 116 52233		10k 5% 0.5W
3254		4822 116 52283		4k7 5% 0.5W
3255		4822 050 11002		1k 1% 0.4W
3256		4822 050 11002		1k 1% 0.4W
3257		4822 116 52233		10k 5% 0.5W
3258		4822 116 52283		4k7 5% 0.5W
3259		4822 116 52277		39k 5% 0.5W
3260		4822 116 52256		2k2 5% 0.5W
3261		4822 116 52284		47k 5% 0.5W
3262		4822 050 11002		1k 1% 0.4W
3263		4822 116 52283		4k7 5% 0.5W
3264		4822 116 52234		100k 5% 0.5W
3265		4822 116 52233		10k 5% 0.5W
3266		4822 050 11002		1k 1% 0.4W
3267		4822 050 11002		1k 1% 0.4W
3268		4822 116 52233		10k 5% 0.5W
3269		4822 052 10681	△	680Ω 5% 0.33W
3270		4822 116 52233		10k 5% 0.5W
3280		4822 053 21106	△	10M 5% 0.5W for /37 only
3315		4822 116 52233		10k 5% 0.5W
3316		4822 116 52233		10k 5% 0.5W
3317		4822 116 52219		330Ω 5% 0.5W
3318		4822 116 52219		330Ω 5% 0.5W
3319		4822 052 10228	△	2Ω2 5% 0.33W
3320		4822 052 10228	△	2Ω2 5% 0.33W
3321		4822 052 10228	△	2Ω2 5% 0.33W
3322		4822 052 10228	△	2Ω2 5% 0.33W
3323		4822 116 52175		100Ω 5% 0.5W
3324		4822 116 52175		100Ω 5% 0.5W

▭

3325		4822 052 10228	△	2Ω2 5% 0.33W
3326		4822 052 10228	△	2Ω2 5% 0.33W
3327	+	4822 050 11002		1k 1% 0.4W
3328	+	4822 050 11002		1k 1% 0.4W
3350		4822 116 52195		47Ω 5% 0.5W
3501		4822 116 52231		820Ω 5% 0.5W
3502		4822 116 52231		820Ω 5% 0.5W
3503		4822 116 52257		22k 5% 0.5W
3504		4822 116 52257		22k 5% 0.5W
3505		4822 116 52233		10k 5% 0.5W
3506		4822 116 52233		10k 5% 0.5W
3507		4822 116 52257		22k 5% 0.5W
3508		4822 116 52257		22k 5% 0.5W
3509		4822 116 52296		6k8 5% 0.5W
3510		4822 116 52296		6k8 5% 0.5W
3511		4822 116 52263		2k7 5% 0.5W
3512		4822 116 52263		2k7 5% 0.5W
3513	+	4822 116 52235		1M 5% 0.5W
3514	+	4822 116 52235		1M 5% 0.5W
3515	+	4822 116 52235		1M 5% 0.5W
3516	+	4822 116 52235		1M 5% 0.5W
3517	+	4822 116 52269		3k3 5% 0.5W
3518	+	4822 116 52269		3k3 5% 0.5W
3519	+	4822 116 52276		3k9 5% 0.5W
3520	+	4822 116 52276		3k9 5% 0.5W
3521	+	4822 116 52249		1k8 5% 0.5W
3522	+	4822 116 52249		1k8 5% 0.5W
3523		4822 116 52175		100Ω 5% 0.5W
3524		4822 116 52175		100Ω 5% 0.5W
3527		4822 116 52235		1M 5% 0.5W
3528		4822 116 52235		1M 5% 0.5W
3529		4822 116 52269		3k3 5% 0.5W
3530		4822 116 52269		3k3 5% 0.5W
3531		4822 116 52238		12k 5% 0.5W
3532		4822 116 52238		12k 5% 0.5W
3533		4822 116 52263		2k7 5% 0.5W
3534		4822 116 52263		2k7 5% 0.5W
3535		4822 116 52224		470Ω 5% 0.5W
3536		4822 116 52224		470Ω 5% 0.5W
3537		4822 116 52224		470Ω 5% 0.5W
3538		4822 050 11002		1k 1% 0.4W
3539		4822 050 11002		1k 1% 0.4W
3541		4822 116 52233		10k 5% 0.5W
3542		4822 116 52233		10k 5% 0.5W
3543		4822 052 10339	△	33Ω 5% 0.33W
3544		4822 052 10339	△	33Ω 5% 0.33W
3549	+	4822 052 10339	△	33Ω 5% 0.33W
3550		4822 050 11002		1k 1% 0.4W
3551		4822 050 11002		1k 1% 0.4W
3552		4822 116 52234		100k 5% 0.5W
3553		4822 116 52207		1k2 5% 0.5W

+ Not for /37

▭

3554		4822 050 11002		1k 1% 0.4W
3555		4822 050 11002		1k 1% 0.4W
3556		4822 116 52269		3k3 5% 0.5W
3557		4822 116 52234		100k 5% 0.5W
3558		4822 116 52271		33k 5% 0.5W
3559		4822 116 52304		82k 5% 0.5W
3560		4822 116 52304		82k 5% 0.5W
3561		4822 116 52235		1M 5% 0.5W
3562		4822 116 52235		1M 5% 0.5W
3563		4822 116 52269		3k3 5% 0.5W
3564		4822 116 52269		3k3 5% 0.5W
3565		4822 116 52263		2k7 5% 0.5W
3566		4822 116 52263		2k7 5% 0.5W
3567		4822 116 52222		390Ω 5% 0.5W
3568		4822 116 52222		390Ω 5% 0.5W
3569		4822 116 52235		1M 5% 0.5W
3570		4822 116 52235		1M 5% 0.5W
3571		4822 116 52271		33k 5% 0.5W
3573		4822 116 52256		2k2 5% 0.5W
3574		4822 116 52256		2k2 5% 0.5W
3621	+	4822 050 11002		1k 1% 0.4W
3622	+	4822 050 11002		1k 1% 0.4W
3700		4822 050 11002		1k 1% 0.4W
3701		4822 050 11002		1k 1% 0.4W
3703		4822 116 52215		220Ω 5% 0.5W
3705		4822 116 52175		100Ω 5% 0.5W
3706		4822 116 52276		3k9 5% 0.5W
3707		4822 116 52175		100Ω 5% 0.5W
3708		4822 116 52238		12k 5% 0.5W
3709		4822 116 52252		180k 5% 0.5W
3710		4822 116 52251		18k 5% 0.5W
3711		4822 116 52256		2k2 5% 0.5W
3712		4822 116 52215		220Ω 5% 0.5W
3713		4822 116 52289		5k6 5% 0.5W
3714		4822 116 52175		100Ω 5% 0.5W
3716		4822 116 52252		180k 5% 0.5W
3717		4822 116 52296		6k8 5% 0.5W
3718		4822 116 52252		180k 5% 0.5W
3719		4822 116 52175		100Ω 5% 0.5W
3720		4822 050 26808		6Ω8 1% 0.6W
3721		4822 116 52249		1k8 5% 0.5W
3722		4822 116 52256		2k2 5% 0.5W
3723		4822 116 52251		18k 5% 0.5W
3724		4822 116 52289		5k6 5% 0.5W
3725		4822 116 52238		12k 5% 0.5W
3727		4822 116 52276		3k9 5% 0.5W
3728		4822 116 52296		6k8 5% 0.5W
3731		4822 116 52235		1M 5% 0.5W
3732		4822 116 52249		1k8 5% 0.5W
3733		4822 050 26808		6Ω8 1% 0.6W
3734		4822 111 30893		4M7 5% 0.2W
3735		4822 116 52235		1M 5% 0.5W

▭

3737		4822 116 52207		1k2 5% 0.5W
3738		4822 116 52303		8k2 5% 0.5W
3740		4822 116 52234		100k 5% 0.5W
3741		4822 052 10109	△	10Ω 5% 0.33W
3742		4822 116 52289		5k6 5% 0.5W
3745		4822 116 52256		2k2 5% 0.5W
3746		4822 116 52235		1M 5% 0.5W
3750		4822 116 52235		1M 5% 0.5W
3751		4822 116 81682		2M2 5% 0.5W
3752		4822 116 52235		1M 5% 0.5W
3754		4822 111 30893		4M7 5% 0.2W
3755		4822 116 81682		2M2 5% 0.5W
3756		4822 116 52234		100k 5% 0.5W
3758		4822 111 30893		4M7 5% 0.2W
3759		4822 116 52283		4k7 5% 0.5W
3760		4822 116 52235		1M 5% 0.5W
3761		4822 116 52234		100k 5% 0.5W
3765		4822 116 52234		100k 5% 0.5W
3767		4822 116 52256		2k2 5% 0.5W
3768		4822 116 52257		22k 5% 0.5W
3769		4822 116 52298		680k 5% 0.5W
3771		4822 116 52298		680k 5% 0.5W
3775		4822 116 52283		4k7 5% 0.5W
3776		4822 116 52257		22k 5% 0.5W
3777		4822 116 52256		2k2 5% 0.5W
3778		4822 116 52257		22k 5% 0.5W
3780		4822 116 52233		10k 5% 0.5W
3781		4822 116 52234		100k 5% 0.5W
3782		4822 116 52235		1M 5% 0.5W
3784		4822 111 30893		4M7 5% 0.2W
3785		4822 116 52235		1M 5% 0.5W
3786		4822 116 52249		1k8 5% 0.5W
3787		4822 116 52249		1k8 5% 0.5W
3789		4822 116 52283		4k7 5% 0.5W
3790		4822 050 11002		1k 1% 0.4W
3791		4822 116 52285		470k 5% 0.5W
3794		4822 116 52235		1M 5% 0.5W
3797		4822 116 52257		22k 5% 0.5W
3798		4822 116 52256		2k2 5% 0.5W
3799		4822 116 52235		1M 5% 0.5W
3800		4822 116 52285		470k 5% 0.5W
3801		4822 116 52235		1M 5% 0.5W
3804		4822 116 52256		2k2 5% 0.5W
3805		4822 116 52235		1M 5% 0.5W
3806		4822 116 81682		2M2 5% 0.5W
3807		4822 116 52285		470k 5% 0.5W
3808		4822 116 52215		220Ω 5% 0.5W
3809		4822 116 52215		220Ω 5% 0.5W
3810		4822 116 52215		220Ω 5% 0.5W
3811		4822 116 52215		220Ω 5% 0.5W
3812		4822 116 52244		15k 5% 0.5W
3813		4822 116 52289		5k6 5% 0.5W
3814		4822 116 52289		5k6 5% 0.5W

▭

3815		4822 116 52244		15k 5% 0.5W
3817		4822 111 30893		4M7 5% 0.2W
3818		4822 050 11002		1k 1% 0.4W

5280		4822 146 31352	△	Mains Transformer
5281		4822 157 70003	△	Mains Choke Coil
5311	+	4822 157 62552		2.2µH 20%
5312	+	4822 157 62552		2.2µH 20%
5315		4822 157 62552		2.2µH 20%
5316		4822 157 62552		2.2µH 20%
5701		4822 156 20946		Osc Coil 100kHz

▶|

6250		4822 130 82079	△	D3SBA20
6251		4822 130 30621		1N4148
6252		4822 130 30621		1N4148
6253		4822 130 34173		BZX79-C5V6
6254		4822 130 30621		1N4148
6255		5322 130 30684	△	1N4002
6257		5322 130 30684	△	1N4002
6258		5322 130 30684	△	1N4002
6259		4822 130 30621		1N4148
6260		5322 130 30684		1N4002
6261		4822 130 34233		BZX79-C5V1
6350	+	4822 130 30621	△	1N4148
6351		4822 130 30621		1N4148
6354	+	4822 130 30621	△	1N4148
6355	+	4822 130 30621	△	1N4148
6501		4822 130 30621		1N4148
6502		4822 130 30621		1N4148
6503		4822 130 30621		1N4148
6504		4822 130 30621		1N4148
6505		4822 130 30621		1N4148
6510		4822 130 30621		1N4148
6700		4822 130 30621		1N4148
6701		4822 130 30621		1N4148
6704		4822 130 30621		1N4148
6706		4822 130 30621		1N4148
6709		4822 130 30621		1N4148
6710		4822 130 30621		1N4148
6711		4822 130 30621		1N4148
6714		4822 130 30621		1N4148
6716		4822 130 30621		1N4148
6719		4822 130 30621		1N4148
6720		4822 130 30621		1N4148
6721		4822 130 30621		1N4148
6724		4822 130 30621		1N4148
6728		4822 130 30621		1N4148
6729		4822 130 30621		1N4148

▶|

6730		4822 130 30621		1N4148
6732		4822 130 30621		1N4148
6734		4822 130 30621		1N4148
6735		4822 130 30621		1N4148
6736		4822 130 30621		1N4148
6738		4822 130 32574		1SS106
6739		4822 130 30621		1N4148
6740		4822 130 30621		1N4148
6741		4822 130 30621		1N4148

7250		4822 130 40937		BC548B
7252		4822 130 61236	△	BD234
7253		4822 130 40937		BC548B
7254		4822 130 40937		BC548B
7255		4822 130 44197		BC558B
7256		4822 130 40937		BC548B
7257		4822 209 80891	△	MC7805CT
7313		4822 209 73356	△	AN7161N(FP)
7314		4822 209 73356	△	AN7161N(FP)
7501		4822 209 10263		HEF4052B
7502		5322 209 10421		HEF4094BP
7503	+	4822 130 44246		BC549C
7504	+	4822 130 44246		BC549C
7505		4822 130 44246		BC549C
7506		4822 130 44246		BC549C
7507		4822 130 40937		BC548B
7508		4822 130 40937		BC548B
7509		4822 130 40937		BC548B
7510		4822 209 30537		TC9153P
7511		4822 130 44246		BC549C
7512		4822 130 44246		BC549C
7513		5322 130 44779		BC338-40
7514		5322 130 44779		BC338-40
7533		5322 130 44779		BC338-40
7534		5322 130 44779		BC338-40
7702		4822 130 63494		J111
7703		5322 130 44779		BC338-40
7706		4822 130 44196		BC548C
7708		4822 130 44196		BC548C
7709		5322 130 60068		BC558C
7710		4822 130 44196		BC548C
7711		4822 130 44196		BC548C
7712		4822 130 44196		BC548C
7713		4822 209 32919		HEF4952BT
7714		4822 209 32918		AN7318S
7715		4822 209 32919		HEF4952BT
7716		4822 130 44196		BC548C
7719		4822 130 44196		BC548C
7720		4822 209 32919		HEF4952BT

+ Not for /37

Note: Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS - KARAOKE BOARD (For Karaoke version only)

MISCELLANEOUS

1551	4822 267 40898	Mic Socket
1553	4822 276 12571	Vocal Fade Switch

2630	5322 121 42661	330nF 5% 63V
2631	5322 121 42661	330nF 5% 63V
2632	4822 124 40244	2.2µF 20% 63V
2633	4822 124 40244	2.2µF 20% 63V
2634	5322 121 42662	68nF 5% 250V
2635	5322 121 42662	68nF 5% 250V
2636	4822 124 40244	2.2µF 20% 63V
2637	4822 124 40244	2.2µF 20% 63V
2640	4822 124 41643	100µF 20% 16V
2641	4822 124 41643	100µF 20% 16V
2642	4822 124 41643	100µF 20% 16V
2643	4822 124 40246	4.7µF 20% 63V
2644	4822 122 33069	33pF 5% 50V
2645	4822 124 40246	4.7µF 20% 63V
2646	4822 122 33069	33pF 5% 50V
2647	4822 124 40244	2.2µF 20% 63V
2648	4822 124 40246	4.7µF 20% 63V
2649	4822 126 11585	22nF +80-20% 25V
2650	4822 126 11585	22nF +80-20% 25V
2651	4822 126 11585	22nF +80-20% 25V
2652	4822 126 12787	330pF 10% 50V
2653	4822 126 12787	330pF 10% 50V
2654	4822 122 33195	100pF 10% 50V
2655	4822 122 33195	100pF 10% 50V
2656	4822 122 33197	1nF 10% 50V
2658	4822 122 33197	1nF 10% 50V
2659	4822 122 33848	47pF 5% 50V
2660	4822 124 40248	10µF 20% 63V
2661	4822 124 40248	10µF 20% 63V

3630	4822 116 52251	18k 5% 0.5W
3631	4822 116 52251	18k 5% 0.5W
3632	4822 116 52234	100k 5% 0.5W
3633	4822 116 52234	100k 5% 0.5W
3634	4822 116 52265	270k 5% 0.5W
3635	4822 116 52265	270k 5% 0.5W
3636	4822 116 52289	5k6 5% 0.5W
3637	4822 116 52289	5k6 5% 0.5W
3638	4822 116 52263	2k7 5% 0.5W
3639	4822 116 52263	2k7 5% 0.5W
3640	4822 116 52303	8k2 5% 0.5W
3641	4822 116 52303	8k2 5% 0.5W
3642	4822 116 52244	15k 5% 0.5W
3643	4822 116 52244	15k 5% 0.5W
3644	4822 116 52234	100k 5% 0.5W
3645	4822 116 52234	100k 5% 0.5W
3646	4822 116 52234	100k 5% 0.5W
3647	4822 116 52234	100k 5% 0.5W
3652	4822 116 81682	2M2 5% 0.5W
3653	4822 116 81682	2M2 5% 0.5W
3654	4822 116 52249	1k8 5% 0.5W
3655	4822 116 52249	1k8 5% 0.5W
3656	4822 116 52219	330Ω 5% 0.5W
3657	4822 116 52219	330Ω 5% 0.5W
3658	4822 116 52175	100Ω 5% 0.5W
3659	4822 116 52175	100Ω 5% 0.5W
3660	4822 116 52284	47k 5% 0.5W
3661	4822 116 52207	1k2 5% 0.5W
3662	4822 116 52289	5k6 5% 0.5W
3663	4822 116 52226	560Ω 5% 0.5W
3664	4822 050 11002	1k 1% 0.4W
3665	4822 116 52249	1k8 5% 0.5W
3666	4822 116 52224	470Ω 5% 0.5W
3667	4822 116 52243	1k5 5% 0.5W
3668	4822 116 52245	150k 5% 0.5W
3669	4822 116 52258	220k 5% 0.5W
3671	4822 116 52234	100k 5% 0.5W
3672	4822 116 52234	100k 5% 0.5W
3673	4822 101 21204	Potm. Rotary 20KA
3674	4822 116 52207	1k2 5% 0.5W
3675	4822 052 10339 △	33Ω 5% 0.33W
3676	4822 116 52207	1k2 5% 0.5W

5630	4822 157 52286	22µH 10%
5631	4822 157 52286	22µH 10%

7630	4822 130 44246	BC549C
7631	4822 130 44246	BC549C
7632	4822 130 44246	BC549C
7633	4822 130 44246	BC549C
7634	4822 130 44246	BC549C
7635	4822 130 44246	BC549C

Note: Only the parts mentioned in this list are normal servic spare parts.

CDC MECHANISM REPAIR HINTS

A. Procedure to remove the CDC from the set. (Refer to set disassembly drawing)

1. To open the CD tray, turn the PULLEY A(see Fig.1) clockwise.
2. Remove the nose piece (position no.264)
3. Unscrew the two mounting screws at the rear of the CDC and remove the CDC.

B. If the CD tray is jammed,

1. Unplug connector from socket 1802(refer to CD circuits).
2. Apply 5V across PIN 3 & 4 to bring the CD mechanism down.
   CAUTION : Tray can only opened when CD mechanism is down and before GEAR C & D disengage.
3. Apply 5V across PIN 1 & 2 to bring the tray out.
4. Proceed with **A.**

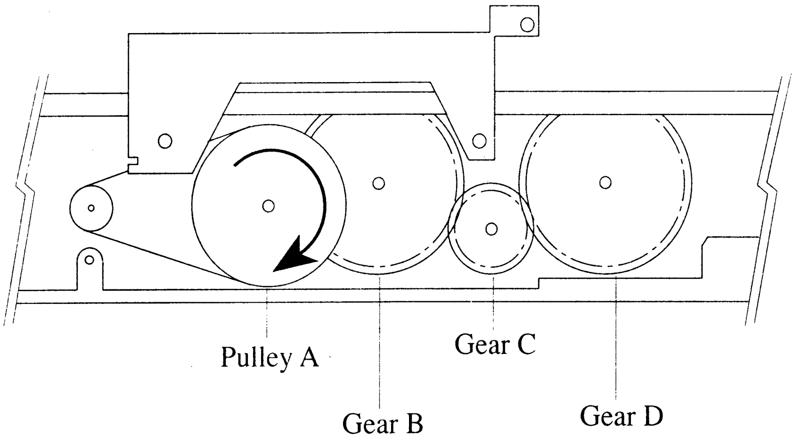
Pulley A
Gear C
Gear B
Gear D

Fig. 1 Right-side view of CDC mechanism

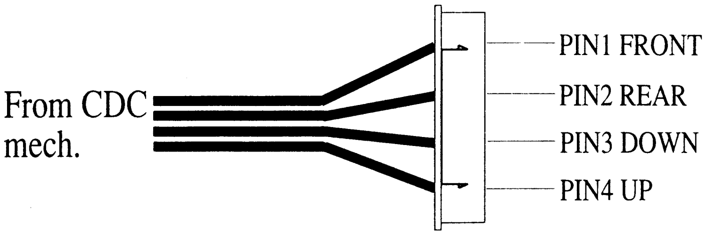
From CDC mech.
PIN1 FRONT
PIN2 REAR
PIN3 DOWN
PIN4 UP

Fig. 2 Item ㊽ of CDC mechanism